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Editorials

LAWYERS NEXT

H. L. Mencken, in "America's Future," says: Certainly the lawyers in the Department of Justice must be well aware that an analogous effort to invade and deprofessionalize their own profession has been under way for years and that nearly all the decent lawyers in America have opposed it violently and gone into court time and again to prevent it. All the objections that these decent lawyers have brought against the practice of law by corporations are valid against the practice of medicine by corporations. Both schemes, however artfully they may be disguised, involve the organization of professional men into gangs bossed by laymen and the retailing of their services to all comers. Both are destructive of their professional status.

WE HAVE A DOCTOR

"We have a doctor in our community" would have made a headline for any village paper in Illinois one hundred years ago. At that time, when a small number of physicians were putting the first breath of life into a State Medical Society, there were many towns without nearby medical service. Persons in areas of fifteen to thirty miles wide frequently had difficulty in securing the personal service of a doctor. And it is to be remembered that fifteen miles constituted a barrier of time to messengers appealing for care and to the physician answering the call. The ordinary dispensing to the ill of the day called for frequent recourse to the family doctoring book or to that section of the cookbook filled with remedies of ancient merit. Midwives, "grannies" of local renown and itinerant vendors filled in the gaps of desire for attention where medical care could not be obtained or where its purveyor was disliked. The drug store was less common outside the physician's office than it was in it; a great variety of sure cures were obtainable at the only store of the neighborhood. Flour, pickled meat and opium could

be had over the same counter by anyone who had the credit. Transportation of that day in Illinois was chiefly by *man* power and by *horse* power. Water power was little used and steam was only making a practical appearance.

Travelable ground and rivers assisted here as elsewhere the utilization of the various sorts of power as a means of moving to and settling of the then vast spaces of the state. The likely landing places on river banks and the interval stations on dry post-roads became nuclei of developing towns and cities. Aside from the entrepreneur inducements of trade, the chief considerations in the choice of a community were the possibilities to secure medical care and schooling. In general, the motive for moving out to Illinois" was an economic one even among those with juvenile escapist attitudes. Each person wished to obtain something. Along with or through the means of that something he intended to have education and medical care. He knew certain *values:* work, faith in his work, the utility of education, and the advisability of medical care, to list but a few.

Upon this economic drive and sense of values the accomplishments of medicine in Illinois and the whole United States were founded.

Government subsidy and political maneuvering contributed nothing to advancement in public health comparable to the mediums of education and the economic ability of the people. This ability came from work—work which a hundred years ago was largely rural. The produce of Illinois, as of all the prairie countries, was supplying a part of the food needs of the seaboard industrial centers, but a great deal more was going to Europe to feed its armies and its overcrowded cities. These cities were in a sense the prototype of the coming American city—unplanned, degenerating at the core, called into being by a machine age. The addition of steam to the machine accelerated the growth and increased the congestion of all cities. The cities here and abroad took the farmer's produce, and here they also took his children. Along with his children, the cities here also copied his sense of values—work, faith in one's work, honesty, love, justice, education, health. These were not abstract considerations to these migrants from rural communities to cities. They were realities easily observed in their own home areas where time and intimate knowledge of many families fully demonstrated their truths. In the knowledge of these values there was *personal security.*

The hue and cry today is for *social security*—what, in one hundred years of the growth of a state and its medical society has brought about this shift of viewpoint? Apparently it is a development of city life; more specifically it may be described as a result of certain deteriorating trends in the cities. Their unplanned growth has resulted in the physical deterioration of tremendous areas; in these areas moral deterioration has kept equal pace. The values which the farm boy a generation or two before brought to the city are lost sight of and personal security is gone with it. But degrading trends have not alone made their appearance in the slums. Adverse cultural influences have made their mark in places of power and a gross interest in materialism has come to dominate many otherwise capable individuals. The importance of an individual is denied except for what he can accumulate. So these people, too, lack personal security, since if for a minute they relax their acquisitiveness they fail. To these persons absorbed in their materialism *social* security would appear to offer most. If they can, by surrendering a little, protect themselves from losing all, they will have been following the only religion they know. Their philosophy does not improve anything—it only maintains the current status. This philosophy has dominated the management of political affairs in Europe for many years and, of course, stemmed directly from the vested interests entrenched in baronial systems.

Does the trend of living in Illinois make it advisable to look forward to an unfruitful social security as the only course for living? Must we sterilize culture at the level of urban deterioration? We must, of course, be aware of the values of our cities. We must be equally interested in arranging our communities in such a way as to afford an opportunity for the development of personal security. Dr. Carl Snyder in his book, "Capitalism the Creator," touches on both these considerations as follows: "No principally agricultural or pastoral nation we know of has ever grown rich, powerful and civilized. These are the fruits of wealth and enterprise; and these in turn of organized industry and trade. As true today as in the most distant times—all this represents the will to live, to gain, to discover, to conquer; and—whenever these begin to wane

and weaken, and a nation is given over to visionaries, doctrinaires and novices in "social experimentation" its decadence has begun.

At the beginning of our second hundred years we should not adopt any attitudes which are related to philosophies springing from decadent, fixed social attitudes in Europe. Change is the dominant theme in our culture. It is being expressed in the depopulation of our cities. It is expected by reliable predictors that the current census will show a definite trend out of Chicago to the suburbs. Industry continually looks about for methods of decentralizing certain phases of production. These changes in location of people may be taken as signs of a groping for an environment more suited to personal security. It indicates an attempt to find a place more valuable for living and working. Perhaps it is not too much to hope that we may be on the verge of a spiritual awakening—that there may be a new attention to *values* on which the *personal security* of individuals depends.

Personal medical service is one of the necessary components of personal security. Its accomplishments here have nowhere been excelled by a socialized medical service. We need now to lend our encouragement to those business and political forces which will so contribute to the welfare of the people as to enable those persons who wish health to earn the means to secure it. People must *make* their health; they cannot be clothed in it by well-intended legislation. As in the far past years, individuals now interested in their health will turn to an authority who evinces in them a deep personal interest; they will continue to reciprocate that attention with a possessive confidence in *their* doctor. In the coming century, as in the last, personal security and satisfaction will be found in those who say "We have a doctor."

USING THE MEDICAL PROFESSION AS ITS CATSPAW

Regimentation or Americanism—which? Ask the Doctor.

Shall medicine and its votaries be denied that important fundamental—equality of opportunity?

What is the kernel of true Americanism and of man's humanity to man may be capsuled in the phrase—"equality of opportunity."

This equality of opportunity is guaranteed to citizens of the United States by the Declaration of Independence and confirmed by the Constitution. It is unfortunate that a destructive organized movement directed for some years past against this fundamental principle of human liberty should be using the medical profession as its catspaw.

To drug national census against this statement as we will, fails to change the situation. No amount of opportunism of any degree stops the frightful parade of socialistic doctrines and of bolshevistic tenets that are creeping into this great land under the banners of revision and revamping of the conduct of affairs medical. The medical profession quite generally admit frankly enough that some adjudication must be made between the cost of medical education, the cost of medical service to the public and—let this thought be well sunk into the minds of the laity —*the cost of medical service to the medical profession!!* Figures show, that so far as material things are concerned, no profession, trade, craft, science or art repays so small a percentage for the time, money, health, strength in youth invested as does the practice of medicine. The clergy, of course, are not counted in this schedule, for with material things the clergy concerns itself not at all, nor are its profits so to be reckoned. Because medicine is the profession dealing most closely, outside of the church, with the humanities and with laws of health and nature that refuse standardization, medicine is the objective against which is aimed this bolshevistic drive. What revision is necessary to be made in the cost of acquisition of medical knowledge and its dispersement is a technical matter that the medical profession is thoroughly capable of handling within the confines of its own organization. The doctors can correct their own shortcomings better than any neighboring baker or garageman can do this for them. The hippocratian oath has already bound every ethical physician in stronger bonds of equal rights for mankind, brotherly consideration and the finer humanities than any totalitarian regime can evolve in the way of coercive contracts, collusive agreement or despotic standardization. One of the first things the medical student learns is that there is no casts in birth or death. All that can be hoped for is "equality of opportunity."

Since medicine ranks next to the church in its unselfish spiritualities, having destroyed the church, naturally enough the next target of the bolshevists in this America—whose wealth they envy and seek to ape—is the destruction of the medical profession.

All the regimented interference against which the editor of this JOURNAL has stormed and argued for nearly two decades from handicapping lay dictated legislation, are the illegitimate offspring of bolshevism, playing the pretender to the rights of American citizenship and the American instituted equality of opportunity.

Now fire must be fought with fire. Organized misrule is waging a devastating war that organized sanity must come back. The fight is immediate. It must be to a finish. Forces of medicine must organize as never before to fight for the preservation both of the sanctity of their own standards and of true Americanism—the great equality of opportunity.

I need not emphasize how tremendously valuable co-operative services can be right at this present juncture in our American business and professional life. It forms a potent factor in helping to boost us along the path that leads upwards to the plateau of prosperity and professional stability.

Who has voiced this sentiment better than did Benjamin Franklin? When the Declaration of Independence had been signed, Franklin turned blithely to the group and remarked: "Well, gentlemen, we had all better hang together now. For if we don't we shall hang separately."

THE ONE HUNDREDTH ANNUAL MEETING

The Centennial Meeting of the Illinois State Medical Society was held in Peoria on May 21, 22, 23, 1940, according to the Official Program which was published in the May ILLINOIS MEDICAL JOURNAL.

The attendance was the largest ever to be registered at a downstate meeting in the history of this Society, the total registration being more than 2,100. More than one-half of the time was devoted to general meetings with all sections uniting for the presentation of programs of general interest to all physicians, and this feature was highly appreciated by all those present.

The Stag entertainment usually presented on Tuesday evening was replaced by a Joint Meeting with four speakers on the program, and this was a popular feature of the meeting. The Orations in Medicine and Surgery were delivered by Drs. Leonard Rowntree of Philadelphia, and Frank H. Lahey of Boston, both of these speakers discussing subjects which were of general interest to all physicians.

The President's Dinner on Wednesday evening was attended by approximately 500, all of whom thoroughly appreciated the unusual program. At the President's Dinner, officers of the Illinois State Dental Society, State Bar Association and the State Pharmaceutical Association were present as guests of the Society. Dr. Nathan B. Van Etten of New York City, President-Elect of the American Medical Association, was the guest of the Society on Wednesday and made several official presentations during the day. Dr. Van Etten was unanimously elected to Honorary Membership in the Illinois State Medical Society by the House of Delegates at the Tuesday session, and at the President's Dinner, was elected to Honorary Membership in the Fifty Year Club and was presented with the usual certificate of membership and the official emblem, by Dr. James H. Hutton, the retiring President.

The Scientific and Technical Exhibits were more extensive than ever before, and attracted much attention during the meeting. The Hall of Health was displayed in the large Peoria Illinois National Guard Armory, and many interesting health exhibits for the public were shown during the week.

At the closing meeting of the House of Delegates on Thursday morning, the following officers were elected.

Dr. Chas. H. Phifer, Chicago.....Pres.-Elect
Dr. Arthur Sprenger, Peoria.....1st Vice Pres.
Dr. Jas. H. Finch, Champaign..2nd Vice Preg.
Dr. Harold M. Camp, Monmouth.....Secretary
Dr. A. J. Markley, Belvidere.....Treasurer

With a fitting ceremony, Dr. J. S. Templeton, Pinckneyville, was induced into the office of President by the retiring President, Dr. J. H. Hutton, and the new President gave a short, but highly interesting address in which he discussed a number of our present day problems in medicine, and asked for the complete cooperation of all members of the Society during the coming year.

By unanimous vote, the House of Delegates selected Chicago for the 1941 Annual Meeting, subject to the approval and final arrangements by the Council.

AN APOLOGY

May issue of the JOURNAL contained the pictures of over ninety-five per cent. of past presidents of the Illinois State Medical Society, starting at the inception of the organization in 1840 and continuing for the hundred year period ending in 1940. At the time of going to press, pictures of several past presidents could not be located in time for publication in the Centennial issue. Pictures of a few outstanding nationally known ex-presidents, while readily available, were not located in time for the May number. In this issue we publish pictures and short obituaries of Former Presidents Alfred C. Cotton, William L. Baum and Colonel Charles D. Center. Pictures of other missing former presidents, provided they can be located, will appear in subsequent issues of the JOURNAL.

PICTURES OF PAST PRESIDENTS AND SECRETARY WANTED!

Officers of the Illinois State Medical Society are extremely anxious to complete the file of pictures of all past presidents. There are a number missing and it is hoped that someone may be able to furnish copies to the Editor of the JOURNAL, Charles J. Whalen, M. D., 25 East Washington Street, Chicago.

President's Name	Year
Samuel Thompson	1851
C. N. Andrews	1854
A. H. Luce	1864
J. M. Steele	1865
S. W. Noble	1867
G. W. Albin	1871

Secretary's Name	Year
H. Shoemaker	1851

THEY ARE GRADUATES OF THE UNIVERSITY OF ILLINOIS COLLEGE OF PHYSICIANS AND SURGEONS

It is a conspicuous coincidence that the president of the American Medical Association, Doctor Rock Sleyster, and Doctor Charles Herbert Phifer, president-elect of the Illinois State Medical Society, and the councilor of the sixth district of the Illinois State Medical Society, Doctor Thomas B. Knox are all three graduates of the class of 1902 of the University of Illinois, Medical Department. Adopting the slogan of the Salvation Army, "You Can't Keep a Good Man Down," is highly applicable in the case of the gentlemen mentioned.

REPORT OF COMMITTE ON AWARDS HALL OF HEALTH

1. Boy Scouts of America. Creve Coeur Council.

2. Accident Investigation Bureau, Peoria Police Department.

3. Illinois Physicians and Surgeons. Photographic Exhibit. Dr. Carl E. Black.

4. Peoria Public Schools.

5. The Evolution of Resuscitation. Chicago Rapid Transit Co.

SCIENTIFIC EXHIBITS

Original Work

1. Carcinoma of the Colon. R. K. Gilchrist.

2. Neurocirculatory Clinic. Geza de Takats.

3. Cerebral Manifestations in the New Born. Abraham Levinson.

4. Avitaminosis in the Alcoholic. Don C. Sutton and John Ashworth.

5. Plastigut—A New Suture Development. Joseph E. Bellas, Peoria.

6. Controlled Evaporation of Liquid Oxygen. A New and Simple Method of Production of Oxygen Gas at the Bedside. John A. Mathis and Mr. Roland Milan, Pinckneyville.

EDUCATIONAL EXHIBITS

1. Treatment of Seminal Vesiculitis by Transurethral Catheterization and Dilation of the Ejaculatory Ducts. Robert H. Herbst and James W. Merricks, Chicago.

DANGEROUS DAN M'CROBE

A bunch of germs were hitting it up
In the bronchial saloon;
Two bugs in the edge of the larynx
Were jazzing a ragtime tune.
Back in the teeth, in a solo game,
Sat dangerous Ack-Kerchoo;
And watching his pulse was his light of love,
The lady who's known as Flu.—*Exchange.*

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
J. H. Hutton, M. D.
J. R. Neal, M. D.
Ralph Peairs, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois
Address all letters and communications to the Chairman.

R. K. Packard, M. D.
C. H. Phifer, M. D.
C. B. Reed, M. D.
C. B. Ripley, M. D.
C. E. Wilkinson, M. D.
W. M. Hartman, M. D.

Those who attended the annual meeting of the House of Delegates of the Illinois State Medical Society at Peoria this month must have been struck by the interest of the House in problems, economical, and their agreement on the proper stand of the profession thereon.

Particularly encouraging to the Medical Economics Committee was the interest shown in the report on Voluntary Health Plans for Illinois. The report of the sub-committee headed by Dr. W. M. Hartman was listened to carefully by the House and the recommendations of the Committee were accepted without a dissenting vote. This report will be available to the entire membership of the Illinois State Medical Society in the ILLINOIS MEDICAL JOURNAL in the near future. We hope that every member of the society will take time to read it and if anybody has a difference of opinion, they will feel free to get in touch with either Dr. Hartman or the Chairman of the Committee.

In spite of the acuteness of the disaster in Europe at the time of the meeting, there was a general feeling of hopefulness as to the future of American Medicine, even though the spectre of the growth of Dictatorship hung over the entire world at that time. Apparently the attention of the New Dealers in Washington is temporarily distracted to the dangers of a dictator's peace in Europe so that there seemed to be little time for regimentation of the medical profession either in the grandiose manner of the Wagner Bill or the more modest Hospital Plan of the present session. But as always we should not in any manner allow our opposition to such plans to cease. As soon as the European debacle is showing evidence of a final solution, we may be sure that the professions of the United States will again receive attention. Meanwhile, we can continue to contact our legislators and show them that we are on the alert.

On Page 33 of the May issue of *Nation's Business* is the finest article on the problem of American Medicine to come to the attention of the writer. We urgently request that every member of the Illinois Medical Society who can possibly obtain the loan of this magazine, to do so and take time enough to read carefully the entire article. If you will do so, you will receive a most complete and authentic story of the history of the movement, with the dangers inherent therein. The Article is entitled "The Case FOR American Medicine." I am reliably informed that through the assistance of the Chamber of Commerce of the United States and its component local Chambers parts of this article are to be distributed throughout the United States to both the laity and the medical profession. In case you receive either the cartoon or the small pamphlet entitled "Health by Political decree," be sure and give both of them the widest possible distribution. Coming as they do under lay sponsorship, these pamphlets have a much greater range of influence than when they are under medical sponsorship.

As a result of the large amount of material used in the preparation of the anniversary number of the ILLINOIS MEDICAL JOURNAL as well as the increased amount of work imposed on the Editor of the JOURNAL, it was necessary to omit one of the proposed articles for this Column last month. We hope that space will be available at this time to include it as it gives a most excellent review of proposed legislation affecting the medical profession before the present Congress.

This may be the last article by the present writer, for at this time all the Committees of the Council are appointed and it is very possible that there will be a change in the Chairman of this Committee. So at this time, we wish to thank the members of the Illinois State Medical Society for their interest in the work of the committee the past several years, in fact ever since the committee was formed. Through both personal contact and letters, the writer has

made several very good friends and has received an insight into the minds of innumerable members of the profession throughout the state. As a result, he has increased his already high regard for the medical profession as a whole as well as many as individuals. The cooperation he has received from the rank and file of the profession has been only second to that of the members of his committee. The Cooperation of the special Committee, appointed to study the subject of Voluntary Health Insurance during the past years was particularly valuable and the Chairman wishes to thank all of them, but particularly the Chairman, Dr. W. M. Hartman.

E. S. HAMILTON, Chairman.

DO YOU KNOW THAT

Out of England's mystery of exploding gasoline storage tanks has come the amazing discovery of a species of bacteria which can live on kerosene and ferment it into ethane and methane fuel gases, just as ordinary bacteria can ferment sugar into alcohol?

Air in the Stratosphere is hot enough to boil water?

Rumania has grain, wood and the richest oil fields in Europe?

Such dangerous germs as the streptococcus can be fought better at cool temperatures than at hot ones?

Fresh pineapple juice has a specific medicinal value?

Synthetic camphor, made from turpentine, has broken Japan's monopoly? It is now being produced by the DuPont Company in U. S.

A NEW FEDERAL HEALTH PROGRAM

Modest approach to replacing $8,500,000,000 Wagner Plan.

Local supervision planned in rural hospitals to avoid "socialized medicine" charge.

Bogged deep in the mire of controversy is the New Deal health bill which Senator Wagner (Dem.), of New York, tried to launch more than a year ago. Last January, President Roosevelt began an effort to save a modest part of the wreckage. Today, the Presidential salvage work is giving promise of success.

Showing signs of motion is a project which Mr. Roosevelt suggested to Congress in the form of a special message on his fifty-eighth birthday. What the President asked then was the construction of some 50 rural hospitals at federal expense.

Local Operation Planned—When completed, these hospitals would be leased to the appropriate local authorities, who in turn would operate them and pay all their maintenance costs. Last week Senate leaders were anticipating a favorable committee report on a bill containing the essence of Mr. Roosevelt's suggestions.

Compared to the original Wagner Health Bill, the rural hospital program is not pretentious. The fruit of three years' labor by a specially appointed committee, the original national health program called for a ten-year outlay of no less than $8,500,000,000. The rural hospital proposal entails a $10,000,000 appropriation for materials and $2,500,000 for WPA construction labor.

Five-Point Program—Principle of the original Wagner Bill was a system of federal grants-in-aid to be matched by individual States according to their resources. The combined finds were to be applied to a program divided into five major sections: child and maternal health services; general strengthening of public health measures against tuberculosis, venereal diseases, malaria, pneumonia, cancer, and mental ailments; construction of additional hospitals with a 360,000-bed capacity and 500 new health centers; a general program of subsidized medical care, and a system of disability health insurance.

The present plan hits only partially at one of these objectives, the hospital construction aim. But it goes beyond the principles of that bill in directing federal aid on the basis of need, without requiring the beneficiaries to share any of the building costs. The operating costs, which are all that the local authorities are asked to bear, are estimated at $100,000 per year for an average 100-bed hospital as contemplated in the program.

Surveys made by the Public Health Service in Washington show that there are 259 rural areas in the United States that could well use the projected hospital units. In all of these districts the number of hospital beds available to the local population is less than two per thousand. In many cases, Public Health officials assert, long and difficult journeys lie between the rural patient and adequate medical facilities. Not only are such trips hazardous for the seriously ill, they point out, but the cost of transportation is often prohibitive for the poor.

In most cases, the greatest need for rural construction is in localities that can least afford them. High on the list of recommended districts are southern States where economic conditions not only preclude a building program, but foster acute health problems. New England, on the other hand, has no acute hospital shortage.

The 50-hospital project, if adopted, would supply less than one-fifth of these rural deficiencies. The President recommended in his special message that the program be directed particularly toward those areas where no facilities at all now exist.

To select these sites, the bill provides that the Surgeon General of the United States shall decide, with the advice of a council of six chosen from medical or scientific leaders, where the need is greatest. The measure thus removes the placement of these projects from the arena of congressional log-rolling.

Under Local Supervision—By turning over the operation of the hospitals after they are built to local medical supervision, the proposed act avoids the main stream of criticism which has branded the broader program as "socialized medicine." But representatives of private medical groups have asked for an amendment that will prevent the Federal Government from operating the hos-

pitals if local authorities default on their obligation to pay maintenance costs.

Favorable action on the bill is being pressed by the Administration as an opening wedge for a vast new field of possible social legislation, an experimental step on the road to a comprehensive national health program bringing adequate medical care within reach of the country's underprivileged.

Correspondence

DECORATING THE GRAVE OF RUDOLPH ROUSE

Dr. Rudolph Rouse one of Peoria's pioneer physicians, was one of the twelve physicians who met in Springfield in 1840 to organize the Illinois State Medical Society. When the Society was reorganized in 1850, Dr. Rouse acted as Chairman and President "pro-tem," then in 1852 he acted as President of the Society. He was the first mayor of Peoria, and a prominent figure in the Peoria of one hundred years ago.

On Monday, May 20th, an official party consisting of Drs. James H. Hutton, President; J. S. Templeton, President-Elect; Harold M. Camp, Secretary; Rolland L. Green, Councilor, representing the Illinois State Medical Society; Orville E. Barbour, President of the Peoria Medical Society and Arthur Sprenger, Chairman of the Committee on Arrangements, went to the cemetery and with a short ceremony, placed a wreath on the grave of Dr. Rouse.

An attorney who is a member of a firm which has been the legal adviser of the Rouse family for more than eighty years, was present, and he stated that a daughter of Dr. Rouse is still living, and is in her ninety-eighth year, but was unable to be present on account of ill health.

In the annual address of the President, Dr. Hutton gave some interesting data relative to the activities of Dr. Rouse over a period of years, and told of the interest he maintained in this Society, throughout his professional life.

CONDEMNS OF PATENTING OF DRUGS BY UNIVERSITIES OR FOUNDATIONS

The Medical Association of the State of Alabama begs to call to your attention the following important resolution adopted by it on April 18, 1940:

Whereas, There is a growing tendency to patent drugs in the name of universities and foundations in connection with universities; and

Whereas, These patents are presented to the institutions by the discoverers; and

Whereas, The discoverers of the products are usually medical men; and

Whereas, The effect of the patents is to increase the price of the drugs because of the royalties imposed by the said foundations; and

Whereas, A considerable proportion of patients in need of the new products are prevented from buying them by reason of the necessarily high prices asked; and

Whereas, This hardship is imposed upon the needy public through the acts of the discoverers under the guise of foundations;

Be It Resolved, That The Medical Association of the State of Alabama condemns as unethical the patenting of drugs or medical appliances for profit whether the patent be held by a physician or be transferred by him to some university or medical research foundation, since the result is the same, namely, the deprivation of the needy sick of the benefits of many new medical discoveries through the acts of medical men; and

Be It Further Resolved, That copies of these resolutions be sent to the leading medical associations and journals, to the leading medical colleges of the United States and Canada, and to the secretaries of all state medical associations as well as to that of the District of Columbia.

Douglas L. Cannon, M. D.,
Secretary.

PROMINENT LAY ORGANIZATIONS APPRECIATE ABILITY OF SPEAKERS FROM THE ILLINOIS STATE MEDICAL SOCIETY

President Lake Forest Woman's Club: "We greatly enjoyed the doctor's keen sense of humor and at the same time had a most enlightening and instructive talk."

President Forest Ridge Woman's Club: "Everyone enjoyed Dr. C. and his talk as they all felt they got a great deal out of it. We are so glad to have had the privilege of having this doctor speak before our club."

President Kankakee Woman's Club: "Spoke well, had nice personality and the club liked his lecture very much."

President Woman's Club, Peoples Church, Chicago: "His talk was clear, concise and instructive, told in a very interesting manner. The audience was pleased."

Professor of a college: "Very good. Well organized. Not too simple, and not too technical."

President Tremont Woman's Club: "Doctor gave a splendid talk on the subject and was heard by the student body of 380 students, the faculty and about 90 women from the different clubs. His lecture was clearly given and was most interesting from beginning to end."

President Geneseo Kiwanis Club: "Very excellent presentation, well received and appreciated. 'One of the best talks of the year' was one remark heard."

President DeKalb County Federation of Women's Clubs: "Best talk ever heard on that subject."

DeWitt County Teacher's Institute, County Superintendent of Schools: "I heard many compliments on this address by teachers who were present. I consider it one of the best addresses made before the 1939 Teacher's Institute."

Jackson County Teacher's Institute, County Superintendent of Schools: "Subject covered in clear concise way and has created numerous favorable impressions among teachers."

President, Shelby County Federation of Women's Clubs: "This was one of the finest talks I have heard at a woman's club meeting, even a State meeting! Almost every woman came to me and told how thoroughly they enjoyed the talk and what a pity their husbands could not have heard it too."

Aurora Woman's Club: "Interesting and convicing speaker, easily understood by lay person."

Hinsdale Chamber of Commerce: "The doctor gave a very interesting talk; all the men enjoyed it and spoke of him very highly."

Senior Students Amundsen High School: "He was very fine and every one of the seniors enjoyed his talk. It gave us an idea of the number of fields in medicine. Thank you for such an interesting speaker."

American Legion Post: "Excellent speaker. Held audience throughout entire talk. Fine personality."

Macon County Home Bureau: "Such an excellent and informative talk deserved a much larger audience. Members present showed great interest in the questions which they asked. Several said they would report to fellow members who did not attend how much they missed."

Centralia Woman's Club: "Had pleasant manner, good appearance, immediately placed audience in receptive mood and kept it so. Gave a simple, straightforward discourse in a scholarly way. Forum discussion followed."

DeKalb Business and Professional Woman's Club: "Lecture very well given. Enthusiastically received. Members would be very glad to have him come back at any time. Delivery good. Personality good. Highly recommended."

REPORT OF EDUCATIONAL COMMITTEE

May, 1940

Special Work in Connection with Annual Meeting

Hall of Health—All exhibitors were secured for the Hall of Health. Blue prints were sent each organization with space marked and full instructions given.

Material was prepared for the Handbook of the Hall of Health. An extensive exhibit was prepared and displayed.

Assistant to Publicity Director—1,980 releases, written by Mr. Hagan, were mimeographed and mailed to newspapers of 19 counties in the Peoria area.

Photographs of out of state speakers and officers secured for Peoria papers.

Secured advance copies of papers to be presented.

Moving picture films obtained for showing at the Shrine Mosque and 2,000 schedules mimeographed.

Prepared exhibit of special publicity for display at the Shrine.

SPEAKERS BUREAU

52 doctors addressed lay organizations through the Educational Committee office. A number of doctors

appeared before lay groups of Peoria during the Annual Meeting.

RADIO

14 radio programs were given over Chicago stations with copies of the scripts furnished downstate county societies.

SCIENTIFIC SERVICE COMMITTEE

26 speakers were scheduled for the following societies—Beardstown Hospital, St. Clair, Henry, Will-Grundy, Madison, Vermilion, Jersey-Greene, Bureau, Lake, Effingham, Coles-Cumberland, Stephenson, Iroquois, Knox, McLean, Whiteside, Lee.

1 Postgraduate Conference was arranged for the doctors of Northern Illinois with speakers from Missouri, Michigan, Illinois. The program began in the afternoon and continued through the evening.

PUBLICITY FOR MEDICAL MEETINGS

30 releases about Franklin County.
61 releases about La Salle County.
35 releases about Henry County.
35 releases about Effingham County.
40 releases about St. Anthony Hospital of Rockford.
47 releases about Bureau.
24 releases about Jefferson-Hamilton.
51 releases about Knox.
50 releases about Whiteside.

SERVICE TO COUNTY MEDICAL SOCIETIES

188 invitations prepared and sent for Franklin County.
300 invitations, La Salle County.
262 invitations, Jefferson-Hamilton County.
180 invitations, Henry County.
148 invitations, Effingham County.
88 invitations, Perry County.

SERVICE TO COUNTY MEDICAL SOCIETIES

92 invitations prepared and sent for Bureau County.
175 invitations, Knox County.
223 invitations, Whiteside County.

NEWSPAPER SERVICE

410 health columns to newspapers downstate.
64 health columns to Chicago newspapers.
645 editorial health columns to newspapers.
4,880 articles to lay list.
456 articles to hospitals.
476 articles to libraries.

Releases written and approved on the following subjects: Diabetes, Fitness in the Spring, Illinois Observes Mothers' Day, Do You Want to Become a Doctor? Depressions, Sore Throats, Medical Emblems, Esthetic Operations, Your Child's Vision, Taking a Vacation, The Skin and Its Care, Rheumatic Fever, Roadside Restaurants, Our Changing Dietary Habits.

CONTACTS WITH LAY ORGANIZATIONS

Prepared material for Health Chairman Illinois Federation of Women's Clubs.

Assisted State Commander Woman's Field Army for Control of Cancer.

Wrote letters to 403 Summer Round-up Chairmen of the Illinois Congress of Parents and Teachers giving names of officers of local county medical societies.

Furnished material for the State Meeting of the Illinois Congress of Parents and Teachers and Special Summer Round-up Articles for campaigns in all sections of the state.

Furnished program material to program chairmen of the Illinois Congress of Parents and Teachers.

Cooperated with Officials of Chicago Youth Week.

Prepared an exhibit for showing at the Annual Meeting of the Physical Education and Recreation Directors of the U. S. and as a result added one hundred new names to the mailing list.

Obtained pictures of all past Secretaries of the Illinois State Medical Society for the JOURNAL.

Respectfully submitted,

Jean McArthur.

OBSERVATIONS ON RESULTS OF STATE BOARD EXAMINATIONS

Chicago, Ill., March 26, 1940.

To the Editor:

Recently an interesting work was published presenting results of a survey of 89 medical schools in the United States and Canada. It is of educational value to anyone who is interested in evaluating medical education. When the student has finished his medical school, which has been judged by the survey mentioned, he has another hurdle, the examination for State licensure. The importance of State Board examinations in evaluating the finished product from the schools is still a controversial question. Should the examination for licensure be considered a final analysis of the graduate? It is probably true that the marks obtained in licensure examinations are not necessarily a yardstick by which we predicate the candidate's success or failure as a practitioner of medicine. It would seem that if we evaluate medical schools and give the ratings, such as, excellent, good or poor, their products, the graduates might well be expected to rate in a similar manner when given tests such as State Board examinations. Are we not justified perhaps, in expecting a graduate from a school rated, A or excellent to obtain the highest marks.

Perhaps the appended figures showing results of Illinois State Board examinations, since 1936 might be of interest. Various interpretations of the figures might be made, but it is not our purpose to draw conclusions at this time.

Arthur H. Geiger,
Member, State of Illinois
Medical Examining Committee.

SUMMARY OF THE RESULTS OF THE ILLINOIS STATE MEDICAL BOARD EXAMINATIONS OF GRADUATES OF THE MEDICAL SCHOOLS IN ILLINOIS, AS REPORTED IN THE JOURNAL OF THE A. M. A., FOR THE YEARS 1936, 1937, 1938, AND 1939

	The Chicago Medical School*		Loyola University		Northwestern University		Rush Medical College		Univ. of Chicago Div. of Biol. Sciences		University of Illinois		Totals for all Schools		Totals exclusive of C. M. S.	
	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade	No.	Avg. Grade
1936																
January	15	81.83	7	83.57	12	85.83	12	85.75	4	85.25	17	84.76	67	84.40		
April	3	84.66	3	82.66	15	85.00	6	84.33	2	85.00	2	84.00	31	84.55		
June	50	82.96	45	83.98	47	84.32	30	84.63	5	85.60	78	84.49	255	84.11		
October	15	82.86	4	83.75	15	84.73	14	84.57	5	84.60	12	85.83	65	84.40		
Totals	83	82.82	59	83.47	89	84.71	62	84.80	16	85.12	109	84.67	418	84.17	355	84.22
1937																
January	10	82.80	3	86.33	5	87.40	14	84.79	2	83.50	18	84.67	52	84.67		
April	5	85.60	1	87.00	14	85.64	15	85.60	3	85.33	1	89.00	39	85.72		
June	55	83.15	60	82.68	30	84.03	24	84.50	4	84.25	89	84.17	262	83.63		
October	11	82.45	6	84.17	16	84.62	12	84.92	..	....	16	84.56	61	84.23		
Totals	81	83.16	70	83.03	65	84.78	65	84.89	9	84.44	124	84.34	414	84.05	333	84.26
1938																
Janary	6	82.50	..	....	10	83.90	4	84.50	4	85.50	18	84.56	42	85.05		
April	..	....	1	87.00	7	87.20	12	86.92	5	86.80	1	89.00	26	87.06		
June	44	83.20	69	82.42	29	83.38	31	83.87	7	83.29	97	83.84	277	83.33		
October	10	81.30	6	82.66	13	84.15	10	83.20	4	84.50	16	82.00	59	82.96		
Totals	60	82.81	76	82.50	59	84.10	57	84.61	20	84.83	132	83.75	404	83.59	344	83.74
1939																
January	1	81.00	2	81.00	16	83.94	9	84.22	1	86.00	17	83.65	46	83.74		
April	..	....	..	....	10	83.10	4	83.00	..	....	3	83.00	17	83.06		
June	35	81.51	65	82.18	32	82.91	24	83.37	5	83.00	112	83.55	273	82.86		
October	15	82.93	4	84.75	9	83.78	9	85.89	5	85.20	16	84.19	58	84.19		
Totals	51	81.92	71	82.29	67	83.11	46	84.00	11	84.27	148	83.62	394	83.17	343	83.32
Four Year Average	275	82.75	276	82.79	280	84.21	230	84.62	56	84.75	513	84.05	1630	83.75	1355	83.95
Highest Individual Passing Grade during 4 years		92.		88.		90.				90.		90.		91.		
Lowest Individual Passing Grade during 4 years		75.		75.		76.				78.		80.		76.		

*Not recognized by the A. M. A.

DEPARTMENT OF PUBLIC HEALTH

May 29, 1940.

Illinois Medical Journal.

Dear Sir:

On the attached sheet is a list of laboratories newly approved for pre-marital tests and pneumonia typing.

This is for publication in your journal.

Yours very truly,

H. E. McDaniels, Ph. D.,
Co-ordinating Bacteriologist.

APPROVED FOR KAHN & GC TESTS

Dr. Paul Ashley's Laboratory, 24 Illinois Street, Chicago Heights.

The Coleman Clinic, 24 N. Main Street, Canton.

Drs. French & Franklin Laboratory, 715 Lake Street, Oak Park.

The Ikemire Clinic, 201 Grand Prairie, Palestine.

Irving Pk. Clinical Laboratory, 4013 Milwaukee Avenue, Chicago.

E. C. Kelly Laboratory, 410 Main Street, Peoria.

Peoples Hospital Laboratory, 255 W. Cermack Road, Chicago.

Post Graduate Hospital Laboratory, 2400 S. Dearborn Street, Chicago.

St. Joseph's Hospital Laboratory, Cherry Street, Breese (Gc only).

E. J. Shalgos, M.D. Clinic. Laboratory, 1555 W. 79th Street, Room 223, Chicago.

Sixth Corps Area Laboratory, Fort Sheridan.

APPROVED FOR NEUFELD TYPING

Dixon Public Hospital, 403 E. 1st Street, Dixon.

Kewanee Public Hospital, 719 Elliott Street, Kewanee.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Sangamon County. One of the outstanding meetings of the Sangamon County Auxiliary was held Monday, April 22nd when the group was hostess at a spring luncheon and meeting in the Leland hotel for district No. 5. Representatives were present from Logan, McLean, DeWitt and Sangamon Counties. Mrs. D. M. Sirca, president, presided at the meeting. Mrs. H. J. Dooley of Oak Park, Ill., state president-elect and state organization chairman was the honored guest speaker. She outlined fully the policies and purposes of auxiliaries of the state of Illinois. Mrs. F. M. Hagen, Lincoln program chairman of Logan county, told in detail the work they are doing and of new plans for the future. Mrs. H. B. Henkel read "The Doctor's Wife" by Rock Sleyster, M. D., an address given by the president of the A.M.A. to the Woman's auxiliary convention in St. Louis, last May.

Mrs. V. M. Seron, Joliet, state recording secretary, gave a talk on Medical Legislation in which she outlined fully the work along this line in 42 states. She also stressed the work of the National Physicians committee, a topic which was formerly introduced by Mrs. Dooley.

Mrs. Harry Otten, councilor of the fifth district and state Legislative chairman was in charge of the regional program. Arrangements were in charge of Mrs. J. E. Reich and Mrs. C. B. Stuart.

Dear Auxiliary Members:

During the year 1939-1940, four new counties have been added to the State Auxiliary. There are now 24 local organizations of which 17 have Press and Publicity Chairmen. The activities have been announced with fair regularity.

One of the greatest responsibilities rests upon the shoulders of these county chairmen because it is through them, alone, that we may look for interesting facts concerning their functions and progress. Their positions were created for the express purpose of keeping the other 23 units, the officers of the State society and the National organizations informed of their individual activities and local interests. They are the ones who are looked to for expressions of and reactions to national auxiliary problems. This year one third of the counties co-operated, therefore, our work was one-third done. May we hope for a full 100% response during the next year.

It has been a privilege to serve in this small capacity during the past months and I am very grateful to Dr. Whalen, editor of the Illinois State Medical Journal, for publishing our material and also the chairmen of the eight counties for their splendid co-operation.

Mrs. C. W. Stuart,
Chairman, Press and Publicity.

SPEAKING OF SKULLS

Professor: "Here you see the skull of a chimpanzee, a very rare specimen. There are only two in the country—one is in the national museum and I have the other."

TABLES OF IDEAL WEIGHTS BASED ON THE WEIGHT AT 30 YEARS

Men		Women	
Height	Weight	Height	Weight
5 ft.	126 lbs.	4 ft. 8 in.	112 lbs.
5 ft. 1 in.	128 lbs.	4 ft. 9 in.	114 lbs.
5 ft. 2 in.	130 lbs.	4 ft. 10 in.	116 lbs.
5 ft. 3 in.	133 lbs.	4 ft. 11 in.	118 lbs.
5 ft. 4 in.	136 lbs.	5 ft.	120 lbs.
5 ft. 5 in.	140 lbs.	5 ft. 1 in.	122 lbs.
5 ft. 6 in.	144 lbs.	5 ft. 2 in.	124 lbs.
5 ft. 7 in.	148 lbs.	5 ft. 3 in.	127 lbs.
5 ft. 8 in.	152 lbs.	5 ft. 4 in.	131 lbs.
5 ft. 9 in.	156 lbs.	5 ft. 5 in.	134 lbs.
5 ft. 10 in.	161 lbs.	5 ft. 6 in.	138 lbs.
5 ft. 11 in.	166 lbs.	5 ft. 7 in.	142 lbs.
6 ft.	172 lbs.	5 ft. 8 in.	146 lbs.
6 ft. 1 in.	178 lbs.	5 ft. 9 in.	150 lbs.
6 ft. 2 in.	184 lbs.	5 ft. 10 in.	154 lbs.
6 ft. 3 in.	190 lbs.	5 ft. 11 in.	157 lbs.
6 ft. 5 in.	201 lbs.	6 ft.	161 lbs.

ORDERS!

Murphy, a new cavalry recruit, was given one of the worst horses in the troop.

"Remember," said the sergeant, "no one is allowed to dismount without orders."

Murphy was no sooner in the saddle than the horse kicked, and Murphy went over his head.

"Murphy," yelled the sergeant, when he discovered him lying breathless on the ground, "You dismounted!"

"I did."

"Did you have orders?"

"I did."

"From headquarters?"

"No, sir, from hindquarters."

IS THE HOME SAFER THAN THE AUTO OR STREET? 'TISN'T SO

People who fell, cut themselves, received shocks, were burned or were poisoned, or who otherwise came to grief in the "safety and security" of their homes were more numerous than those who met with automobile accidents, according to the National Safety Council. It seems unbelievable, but it is a fact, for during 1938 there were 32,000 people killed as a result of automobile accidents, a decline from the previous year; there were 32,500 persons killed as a result of accidents in the home, an increase. Falls and suffocation were the chief causes.

It is easy to see why the high number of home accidents is not so well known. It has to be a pretty spectacular occurrence—like slipping on a cake of soap and sailing through a window, to make the newspaper. Any motor accident receives much space.

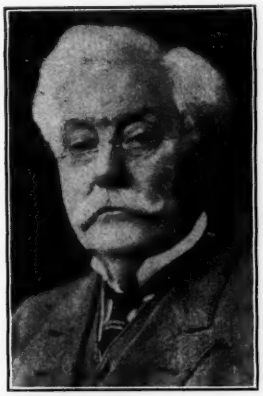
Considerable attention is paid to the infection of children by tuberculous teachers but the question of the infection of children by domestic servants has received little attention. The prevention of first infection tuberculosis involves the examination of domestics in homes where there are children. Teschendorff, V., *Deut. Tuber. Blatt,* 1938 and *Bul. Hyg.,* June, 1939.

PRESIDENTS
ILLINOIS STATE MEDICAL SOCIETY

William Louis Baum, M. D.,
1908

WILLIAM LOUIS BAUM

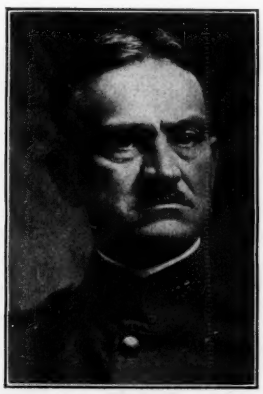
Dr. Baum was born May 11, 1867, in Morris, Illinois. After graduating from Jefferson Medical College, Philadelphia, he took postgraduate work at the Universities of Vienna and Berlin. He specialized in dermatology and urology. He was president of the staff at Cook County Hospital for nine years, and professor of skin and venereal diseases. He was a Fellow of the American College of Surgeons, member of the A. M. A., Chicago Pathological and Chicago Dermatological Societies, and belonged to many social clubs of Chicago. In 1908, he was president of the Illinois State Medical Society. Having received the commission of Lieutenant in the United States Army in 1911, Dr. Baum's record advanced him to the rank of Lieutenant Colonel in 1919. He died Feb. 21, 1932.



Alfred C. Cotton, M. D., 1911

ALFRED CLEVELAND COTTON

Dr. Cotton was born May 18, 1847, in Griggsville, Illinois. As a soldier in the Civil War, graduate of Rush Medical College and professor in that institution, Dr. Cotton was for nearly forty years prominent in the professional life of Chicago. He specialized in diseases of children. During his lifetime he received many honors, as degree of Master of Arts from Illinois College and adjunct professor of materia medica and therapeutics in Rush Medical College. He was a delegate to the International Medical Congress at Moscow in 1897, at Madrid in 1903, and at London in 1913. Among his contributions to medical literature were "Diseases of Children" and "Care of the Infant." Dr. Cotton served as president of the Chicago Medical Society, the Illinois State Medical Society, American Pediatric Society and the Chicago Pediatric Society. He died in July, 1916.

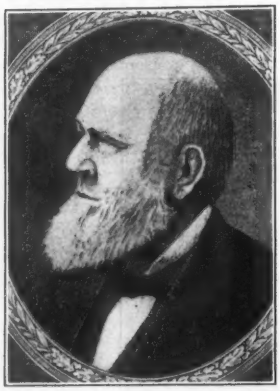


Col. Charles D. Center, M. D.
President-Elect 1933

CHARLES DEWEY CENTER

Charles Dewey Center was born July 8, 1869, on a farm near Ottawa, Illinois. He died of a skull fracture on March 31, 1934, three hours after having been struck by an automobile. Between those two statements lies a lifetime of energetic, useful and honorable achievement. Dr. Center received his degree of M. D. from Rush Medical School. He began his military career in 1905 by becoming assistant surgeon, Medical Corps, 5th Illinois Infantry. In 1910 he was made a captain and two years later a major. He saw duty at Ft. Benjamin Harrison and was transferred to field and became Lieutenant Colonel of Infantry, which position he held throughout the World War. He received many honors, in addition to being the president-elect of the Illinois State Medical Society in 1933. He was a Fellow A. M. A., Fellow of the American College of Surgeons, President of the Adams County Medical Society in 1925. For months prior to his tragic death, he had been working on plans for the interests of the society during his tenure of office as president, which he was to assume on May 17, 1934.

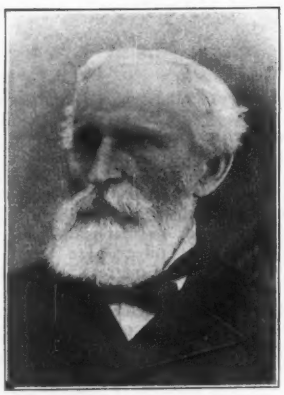
Illinois State Medical Society Secretaries



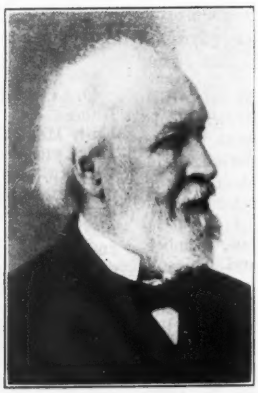
David Prince, M. D., 1840

Edwin G. Meek, M. D., 1850

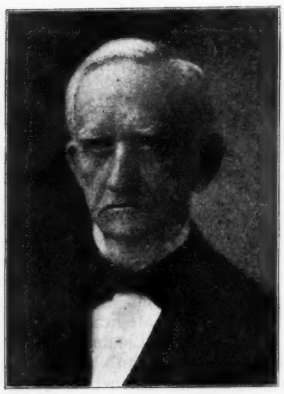
Elias Cooper, M. D., 1852



H. A. Johnson, M. D., 1853-54 and 1857



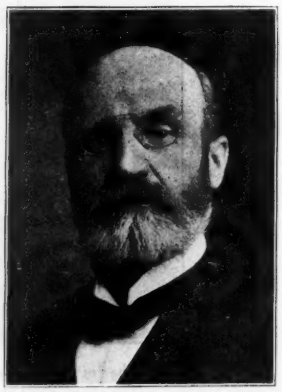
E. Andrews, M. D., 1856



N. S. Davis, M. D., 1856 and 1858-68, 1876-80

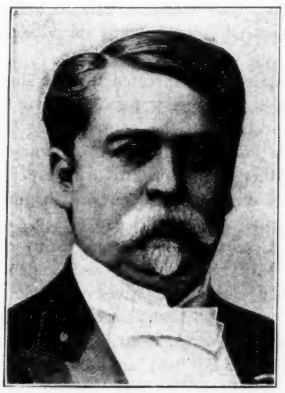
T. D. Fitch, M. D., 1869-75

S. J. Jones, M. D., 1881-86



D. W. Graham, M. D., 1887-93

Illinois State Medical Society Secretaries



J. B. Hamilton, M. D., 1894-97

E. W. Weis, M. D., 1898-1913

W. H. Gilmore, M. D., 1914-22

William D. Chapman, M. D., 1923-24

Harold M. Camp, M. D., 1925-

A REAL CAMPAIGN AGAINST TUBERCULOSIS demands a genuine investigation carried out with general practitioners looking for patients in the community, in industry and in home-making. We are finding an appreciable amount of tuberculosis through testing campaigns in schools but it is not one-quarter of what we would find if the campaign were extended to the groups where tuberculosis is more prevalent.—Long, Esmond R., Phila., Tuber. Conf., 1939.

SURVIVAL OF THE UNFIT

Medicine has alleviated suffering and prolonged life, but it has, in so doing, also prolonged suffering and nullified the purging effects of natural selection. It has saved hundreds of thousands of debilitated organisms which are adding to the burden of society by reproducing more and worse offspring.—"The Wages of Biological Sin," The Atlantic Monthly.

THE LACK OF DECLINE IN THE MORTALITY FROM TUBERCULOSIS in young females seems to be due to increased generative and maternal activity. The task of protecting young women is a medical one and not to be solved by preventing pregnancies but by alleviating the dangers connected with child-bearing and by improving the external conditions during the hardest time in a woman's life. Vital statistics have a practical value if we discover the biological significance behind the figures.—Wolff, Geo., Amer. Jour. Hyg., Nov., 1939.

The industry displayed by Pasteur is well illustrated by the letter mentioned by Oliver, written in 1884 by Madame Pasteur to one of her children: "Your father is absorbed in his thoughts; talks little, sleeps little, rises at dawn and, in one word, continues the life I began with him this day thirty-five years ago."

HOPEFUL PANACEAS SLIP UNDER THE BIG EMERGENCY TENT WITHOUT CHALLENGE

Merle Thorpe, in *Nation's Business* under the heading "A Word for Honest Doubt," says:

Once a nation is persuaded that it is ill, receptivity to lay and professional diagnoses of its malaise become the rule and acceptance of novel treatments the fashion. Every theory of every man or woman who would do the world a good turn is actively promoted as a prescription for the public good. Customary vigilance and common sense go off duty. Hopeful panaceas slip under the big emergency tent, without challenge.

Now that the depression is history, and recovery is a current fact, sponsors of any amendment to the American way of life should be willing to walk up to the main entrance and show their credentials. Proof of every assertion should be forthcoming and a cautious rather than casual weighing of cost, human as well as money, should be made. Plans offered for national acceptance should be solid enough to withstand a wholesome skepticism articulated in the public interest. Those who plead for a change from this and that to that and this, on the ground that their measure has been successful in a foreign land, should bear the burden of proof. Advocacy of drastic institutional remodelings solely by the argument that the workable precedent has long been established in England, Germany, Sweden or Russia is a commonplace. A high official chided us recently for having been "a backward nation, 25 years behind Germany in social security." As more and more is heard in Washington of "extensions" to the Social Security Act, in the form of health insurance, the device of cross-examination might be usefully applied to this proposal:

Q—Is it or is it not a fact that sickness insurance in Germany has

(1) created a scandal in the large amount of funds used for administration?

(2) increased the number of sick days per year from 5½ to 28 (in England since compulsory health insurance from 9 to 12½), while in the United States the percentage has not increased over the same period?

Q—Is it or is it not a fact that state health insurance in Germany and England has shortened life expectancy, increased infant mortality, in striking contrast to the experience of the United States?

Q—Is it or is it not a fact that authentic studies show that in any comparison between compulsory health nations and the United States, on death rate, on diseases subject to human control, the odds are all in favor of the private medical practice here?

Q—Is it or is it not a fact that medical science has advanced more slowly, that medical practice has become more of drudgery in those countries which enjoy state medicine?

Q—Is it or is it not a fact that there is grave doubt that the investigations of personal life necessary to proper administration of health insurance by a political agency, while tolerated in Europe, would be resented here?

These questions are not captious. They are suggested by an editorial study of security measures abroad. They are submitted in a desire to get at the truth, to find the quickest and soundest way to bring greater protection for the individual against the vicissitudes of life.

Were a questioning state found directed toward similar measures which well-meaning protagonists would transplant from other countries, the consequences of their establishment here could be a matter of demonstrable expectation rather than progressive experimentation. The housing experience of the British government for example, the cooperative "successes" of England, Sweden and Denmark, the various forms of industrial control in Italy; price-fixing, state unemployment agencies, public works and "five year" plans in one country and another. All that's necessary today to get a nod of approval, it seems, is to lug in a foreign country as reference. To hold an honest skepticism, to insist upon details of practice abroad does not take the position that nothing good can come from an alien way of life. Rather, it approaches questions, which involve a fundamental change in the America of which we are only temporary trustees, with the same careful regard that the people give matters of fundamental personal concern.

SUDDEN THOUGHTS

A fool and his money sooner or later wind up in college.

A college education: Something that enables a man to get a job from a man who never went to school.

Said the math professor: "Now watch the blackboard while I run through it once more."

Someone has observed that it takes a student 20 minutes longer to say what he thinks than to tell what he knows.—Boulder.

The human brain is certainly a wonderful organ. It starts functioning the minute you get up, and never stops until you get in a quiz section.—Dodo.

Tuberculin testing of mental patients at the Peoria Hospital in Illinois disclosed the fact that 52% of the patients who were not in tuberculosis wards were positive to tuberculin and 23% showed definite evidence of pulmonary tuberculosis with an additional 11% who were classed as questionable. Among the schizophrenics, 23% had tuberculosis. In view of this incidence it would seem that tuberculin testing should become a routine procedure in admitting patients to mental disease hospitals and that positive reactors be X-rayed at regular intervals with particular attention to the dementia praecox group.—Pollak, M., and Turow, I. L., Conf. U. S. Vet. Adm. Phys., 1938.

It is a significant fact that although there has been a tremendous decline in mortality from tuberculosis, there is evidence that the risk of household contacts has not been appreciably reduced. As the disease declines it is apparently more and more concentrated in the immediate environment of the open case.—Doull, James A., *Amer. Rev. of Tuber.*, Dec., 1939.

Original Articles

THE RELATION OF THE ILLINOIS STATE MEDICAL SOCIETY TO ONE HUNDRED YEARS OF PROGRESS*

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Introduction.

The Constitution of the Illinois State Medical Society requires that the president deliver an address at its annual meeting. As this is our centennial, I have tried to summarize some of the Society's important activities and to picture the part it has played in the development of Illinois.

It has been assumed — and the Transactions seem to prove—that the presidents' annual addresses reflected with tolerable accuracy the state and problems of the Society and for that reason they have been liberally quoted.

Transactions of the Society and other sources of medical history show that our members have been not only good doctors as measured by standards of the time in which they worked but also good citizens, teachers, preachers, editors, authors, geologists, botanists, and a very few left records as good business men.

At some annual meetings the Society transacted a large amount of very important business. Other years the meetings were taken up with routine matters of little significance except to the doctors immediately concerned.

Until the ILLINOIS MEDICAL JOURNAL was founded in 1899, the transactions of each annual meeting were published in a bound volume.

The membership of the Society was small in the early years and represented but a small percentage of the doctors in the State. There have been various classes of members—members, permanent members, life members, members by invitation and the emeritus members of recent years. For many years delegates were elected to neighboring state societies as well as to the American Medical Association.

The problems faced by the profession have been curiously alike throughout the Society's lifetime. Its administrative organization has been changed from time to time as the need for emphasis has shifted from one front to another. Before the establishment of the Board of Health, now the Department of Public Health, and for some years afterward, the Committee on Practical Medicine, which was a standing committee up to about 1890, discharged some of the duties now carried on by that organization. Its duty was to "prepare an annual report on the more important improvement effected in this State in the management of individual disease, and on the progress of epidemics, referring as occasion requires to medical topography and to the character of prevailing diseases in special localities, during the term of their service." (Constitution.)

We should remember that up to a little more than half a century ago the cause of many diseases was unknown, fevers could not be differentiated, serum and vaccine therapy had not been developed. Early doctors were careful clinical observers, noting not only the patient and his symptoms and reaction to medication but also his environment as to geography, topography, sanitation and meteorological conditions. They reported to the Committee on Practical Medicine the procedures and prescriptions which they had found helpful, thus forming a common fund of knowledge from which all medical men might draw as needed. This was the same spirit that animates research workers today in making their valuable discoveries widely available as soon as their worth has been proved. In commenting on remedies and procedures once considered valuable but now superseded by something better, these things are cited not in any spirit of derision but to emphasize the great handicaps under which these men worked.

Conditions in the early years. The story of the Illinois State Medical Society begins in 1840. To understand the courage of men who founded it, we must visualize the general conditions of that time. The State had a population of 500,000—it now has three times that many on relief —and only three years before had seen its last Indians across the Mississippi or up into the Wisconsin reservations. Chicago as a city was only three years old. As late as 1834 peddlers sold drinking water in its streets at five and ten cents a barrel. But Chicago then as now was a very progressive city and so in 1843 it passed an ordinance forbidding hogs to run lose in the streets. Charles Dickens referred to Cairo as a "hideous swamp." Peoria had a population of

*President's address.

1,467 and Dr. Rudolphus Rouse was president of the town board of trustees. The village had no paved streets, no distillery and only one brewery. It was connected with Galena, Oquawka, Rushville, Springfield and Chicago by stagecoach. The trip from Peoria to Chicago required two or three days. Food and supplies were brought to Peoria by the river boats so that when the Illinois River was too low for navigation or frozen over in the winter the inhabitants were on short rations except for corn, pork, and foodstuffs produced in the surrounding countryside.

On February 10, 1840, Abraham Lincoln attended a Whig "Festival" in Peoria, at which Dr. Joseph C. Frye, later one of the founders of the Peoria City Medical Society, was a vice-president. Slave catchers were operating in the town that year. Prostitution and shooting in the public streets had been forbidden by an ordinance of 1838.

Roads were scarcely more than trails and much traveling was done by water so that with the close of navigation in winter attendance at medical meetings was smaller than in summer. There were no telegraphs, telephones, electric lights or mechanical refrigeration. The only railroad in the State was a stretch from Jacksonville to Meredosia known as the Northern Cross. It had wooden rails strapped with iron. The ends were bevelled which made them sharp. They often curled up and penetrated the car and were known as "snake heads." The first engine and train to move on rails in Illinois ran over this line in 1838 but it was so unsatisfactory that the engine was finally sold and mules were used as motive power. The first steam train over a private road ran from Halsted street in Chicago to the Des Plaines River in 1848.

A consultation between doctors was apt to require the best part of a day if the patient lived outside of town. Communication was no faster than transportation, which was at the speed of the stagecoach or a man on horseback. Now communication travels almost with the speed of light and one may now travel from Chicago to London in less time than it then took to go from Chicago to St. Louis. Recently Dr. Lahey, our Orator in Surgery, talked to the family of a patient in Honolulu, a brother in Pennsylvania and a second doctor in California, who after the consultation caught the China Clipper and was ready to operate on the patient in Queens Hospital in Honolulu the next morning.

The State of Illinois was one vast reservoir of malaria, which was partly responsible for its reputation as an unhealthful spot. Cholera epidemics swept various parts of the state a number of times. The epidemic of 1849 was brought to Chicago by the Steamer John Drew, which came from New Orleans by the way of the Mississippi and Illinois rivers and the Illinois and Michigan Canal. The captain died of cholera a few hours after his boat arrived. Cholera caused intense suffering and killed a high percentage of those attacked. A man might be in apparent good health one day and dead the next. It last visited Chicago in 1877. Yellow fever was greatly dreaded and in 1878 actually invaded Cairo causing 62 deaths in 100 cases.

Diarrheal diseases took hundreds of lives every year. Ten per cent. or more of mothers died in childbirth and even up to 1879 fifty per cent. of children died before their fifth year. In 1873 Dr. N. S. Davis, who for forty years fought for better public health facilities, told this Society that in Norway the deaths of children under five years of age were only 15 per cent. of the total deaths; in Massachusetts 20 per cent., in Bavaria 50 per cent. It would be interesting to know, he thought, whether Illinois was in the class with Norway or with that of Bavaria. In all probability it was nearer Bavaria than Norway, but there is no way of knowing since at that time Illinois was not keeping books in terms of vital statistics. But Chicago was and the figures are available for comparison. In 1873, the year in which Dr. Davis made the slighting reference to Bavaria, the proportion in Chicago was 59.3, in Bavaria 50. Had the maternal, infant and general mortality rates of that period prevailed to this time, those of you who have children would have seen half of them die and this audience would be much smaller than it is because many of you would be in the cemetery. Had the mortality rates of earlier years prevailed through 1938 Chicago alone would have lost 60,000 people instead of 30,000.

Smallpox occurred in epidemics in all parts of the state.

Diphtheria killed half of its victims. Often all the children in a family would be wiped out

in a single epidemic. In 1939 seventy counties in Illinois had no death from diphtheria.

At the beginning of the 19th century the United States had one asylum for the insane—it was located in Virginia. Forty years later there were eight institutions in America where the mentally ill could receive care, but few of them were institutions supported by state funds. More of the mentally ill, if violent, were locked in barns, sheds, jails, or county poor farms. Elsewhere, if not in Illinois, they were treated as a zoo and admission was charged for the privilege of watching them. If they were harmless, they were sometimes auctioned off to the bidder who would take the smallest sum for their care or turned loose on country roads to become tramps.

The doctor called to the sick bed had to depend for diagnosis on his unaided senses. He had no thermometer (this came into general use about 1879; it was about ten inches long and required at least five minutes to register the axillary temperature), no stethoscope, no instrument for measuring blood pressure, no blood count or blood chemistry determinations, no urinalysis, no x-ray, no way of examining the interior of any organ. Nearly all of those aids to diagnosis have come about in the last fifty years. As a matter of fact, there has been more progress in correct diagnosis and effective treatment of disease since 1880 than in all previously recorded history.

The State exerted no control over medical practice. Whoever felt the "call" to be a doctor simply hung out his shingle and waited for victims. A medical practice act was passed by the territorial general assembly in 1817 when Dr. George Fisher of Kaskaskia was speaker of the house. Dr. George Cadwell championed the law of 1819 entitled "An Act for the Establishment of Medical Societies." Another medical practice act, sponsored by Dr. Conrad Will, was passed in 1825. These laws were repealed by the next legislature succeeding their enactment.

Organization and activities of the Society. In spite of these tremendous handicaps a number of physicians met in Springfield June 9, 1840, to make preliminary arrangements for the organization of a state medical society. Twelve men from widely separated parts of the state were appointed a committee of correspondence, whose duty it was to arrange for a convention to be held in Springfield the following December. The call for the convention issued by this committee was carried by the *Illinois State Journal* June 19, 1940. It proposed ". . . digesting a plan that shall be calculated in its legitimate operations to benefit the people, instruct the unlearned, inform ourselves and elevate the entire profession above all mercenary considerations to a state of superior mental, moral and medical excellence." In short, they were striving to lay the foundation for our Educational, Scientific Service and Postgraduate Committees of today.

While the records of that December meeting cannot be found, Zeuch says the organization was effected and that it transacted important business. Dr. John Todd, an uncle of Mrs. Abraham Lincoln, was president and Dr. C. F. Hughes, secretary. Dr. Francis McNeill succeeded Dr. Hughes in 1841 and presumably remained in office till 1847. December 16, 1847, the Illinois State Medical Society met in Springfield and again elected Dr. Todd president and Dr. David Prince secretary. Dr. Edward Mead, of St. Charles, made a report on medical education and delegates were elected to the National Medical Convention. The evidence is conclusive that Dr. Todd was president from 1840 to 1850.

In June 1850 in the State Library Room at Springfield a convention presided over by Dr. Rudolphus Rouse, as chairman, reorganized the Society on its present basis. Accounts differ as to the number present, but Robert Boal, who was one of them and one of the two survivors in 1882, said that there were twelve.

On motion of Dr. Boal, at the afternoon session of June 5, 1850, it was resolved that a special committee of three be appointed by the chair to memorialize the legislature at its next session praying the enactment of a statute providing for registration of births, deaths and marriages. Ten years later they were still trying to get this done.

The lack of rapid transportation and ready communication was partly responsible for the slow growth of the Society over the early years as indicated by Dr. Whalen's summary of its history in the centennial number of the JOURNAL.

At the Chicago meeting in 1853 Dr. Samuel Thompson presented a paper on the uses of turpentine. A review of the literature, he said, indicated that it was useful in iritis, typhoid

pneumonia, amaurosis, taenia, hemorrhage from mucous membranes, dysentery, colic, congested and distended state of the rectum, and ulcer. Dr. Thomas Hall of Starck County reported that rheumatism was a far more common disease than formerly in that district and was increasing in a far greater ratio than the increase in population.

In 1854 Dr. Daniel Brainard made snake bite the subject of his presidential address.

At Bloomington in 1855 a report of the treasurer showed the society still indebted to Dr. N. S. Davis in the amount of $56.

Dr. C. N. Andrews referred to the lack of appreciation of men by their neighbors. As an example, he noted that Dr. Brainard some months before had given the Paris Academy of Sciences some lessons in the treatment of poisoned wounds and said the address seemed to be well received there but on this side could hardly be credited. It was believed that there was some mistake in the names and so when it was reported here his name was mutilated into a French "M. Benard."

In the *North Western Medical Journal* for April 1855 Dr. N. S. Davis referred to the unusual prevalence of smallpox and the rapidity of its spread. He considered it could not be accounted for by direct contagion but must be aided by an epidemic condition of the atmosphere.

In 1856, in his president's address, Dr. N. S. Davis gave a brief review of the influence alcoholic liquids were capable of exerting either in preventing or curing tuberculosis. He mentioned various writers who claimed beneficial effects, but did not agree with them. Dr. Haller, of Vandalia, said that that season he had not bled a single case of pneumonia of any kind but had used tartar emetic freely and there had been less fatality than usual.

In 1857 Dr. H. Noble dealt with medical progress. Dr. Haller's treatment of typhoid pneumonia was reported as very successful. It consisted of quinine, calomel, antimony, morphine and counter irritants. Out of upwards of thirty cases there was not one fatality.

At the Rockford meeting in 1858 the Society appointed a committee to mature a plan for memorializing the legislature in favor of legalizing dissection.

At the Decatur meeting in 1859 the Society disapproved the fact that the president of the American Medical Association was always picked from the profession of the city where the meeting was convened, it being held that all officers should be chosen on merit basis. A resolution was passed to try to do something to change this custom.

In Paris, in 1860, another petition was made to the General Assembly regarding a law for the registration of births, marriages and deaths. In 1867 it ordered a committee to work for the passage of an act along the lines of modern workmen's compensation laws. In 1874 Dr. J. H. Hollister, of Chicago, moved the appointment of a committee by the president to memorialize the legislature for an appropriation to establish an institution in the state for the better and more humane care of feeble-minded children. Those appointed were Drs. L. P. Pierce, E. P. Cook, of Mendota, and J. L. White, of Bloomington. The institution at Lincoln came about partly as a result of this action.

In 1876 the Society met in Urbana in a Hall of the Industrial University (now the University of Illinois. The treasurer, Dr. John H. Hollister, reported an indebtedness of $118.46.

Dr. T. D. Washburn, of Hillsborough, thought medicine in a bad way and was aggrieved that the public was so easily deluded by irregular and poorly educated practitioners. He thought homeopaths and eclectics were the worst of the lot. Dr. Massie, of Paris, read the report of the Committee on Practical Medicine. Particularly interesting are the prescriptions reported of special value in the treatment of infections, the cause of which had not yet been discovered and for the treatment of which no specific was available.

Dr. W. L. Goodell, of Effingham, stated that in a case of congestive chill, where the patient, a young man, was supposed to be dead by the friends, he administered "in one hour and fifteen minutes three tablespoonfuls of quinine, one teaspoonful of capsicum, two tablespoonfuls of black pepper, and one-half pint of whiskey. After which he sweat as never man sweat before. But his right arm and left leg remained icy cold for three days. He made a good recovery."

Evidently the value of bleeding was beginning to be doubted, and the chairman had asked several members their opinion as to the indications for and value of it. Most men were still using

it. Dr. N. S. Davis said "It is generally beneficial in the first, or congestive stage of acute inflammations in the more vascular structures."

Dr. E. W. Gray, of Bloomington, estimated that preventable disease cost the people of Illinois $120,000,000 annually.

On motion of Dr. S. H. Birney, of Urbana, the Society appointed a committee to memorialize the next legislature on the subject of the appointment of a State Board of Health and suggested that with proper modifications, the act by which the Board of Health of Massachusetts was inaugurated be submitted to the same as a basis for the Illinois State Board.

Dr. Sarah Hackett Stevenson read a paper on Progress in Physiology, the first to be given before the Society by a woman. The same year she was the first woman delegate to the National Medical Association.

Dr. N. S. Davis made a report on the progress of medical education in the United States. This was published by the National Bureau of Education and was an epoch-making factor in raising the standard of medical education.

Dr. S. H. Birney announced that the meeting would adjourn promptly at noon so that members might reach the horse cars which would be waiting near the University Hall.

In 1878 the annual dues were three dollars and delinquents were carried three years. Of the Society's 374 members thirty-one were elected delegates to the American Medical Association.

Dr. N. S. Davis complained of drug stores somewhat as we do today. He said: "There is no reason why the business of filling the prescriptions of physicians should be connected with the traffic in paints, oils, dye-stuffs, toilet articles, fancy goods and cigars than with other dry goods and groceries."

Dr. B. M. Griffith, of Springfield, chairman of the Committee on Arrangements, in his address of welcome said: "The political economy of this country is passing through a critical financial trial, and parties, political and otherwise, are shaping their lines to secure the best results from the changes. It yet remains to be seen whether the silver bill, the issue of four per cent. bonds, economy in government expenditures, the European war, and a rigid reform in the civil service, will be the efficient panacea so much desired to secure prosperity to our people."

At Lincoln in 1879 Dr. E. P. Cook made the following interesting statements: "Seriously, we regard the work thus far done by the State Board of Health as having accomplished more in the direction of medical education in our State than could have been done by any other means in the same or much longer time.

"No other state in the world requires this unfortunate class of sufferers (insane) to be dragged before a court, like common criminals . . . before they can gain admission to an institution.

"But we refer chiefly to the duty of the medical profession in relation to such legislation as is needed to advance sanitary interests in the widest sense and affecting to a greater or less degree every member of the body politic; and that in no way can be construed into the desire to especially advance or protect any professional interest that is not involved in the interests of the whole. To the honor of the profession of this State, it can be said that we have never desired or endeavored to obtain legislation that as a fact could be construed into special protection." This policy has never yet been changed.

Dr. G. W. Jones, of Danville, mentioned that there was much maudlin excitement during the year over the abstraction of a few bodies from family cemetery lots. There was a reaction, he believed, in favor of the profession.

At the Chicago meeting of 1881 thirty-six delegates were appointed to the American Medical Association, and a legislative committee was established as a standing committee.

Dr. J. G. Zeller thought that about 100 young people had died of diphtheria in the west side of Woodford County. Dr. Edmund Andrews, of Chicago, reported on the use of chian turpentine, mastic and sulfur in the treatment of cancer. A year before Professor Clay of Manchester, England, published in the *London Lancet* some cases of cancer nearly cured by the internal use of chian turpentine and flowers of sulfur. His experiments took a profound hold upon the profession and the public so that this form of turpentine six months before had sold for four times its weight in silver. Dr. Andrews' conclusions were that every cancer in a proper location should be cut out early and the remedy taken afterwards and that old, neglected cases where an operation is hopeless, are the only ones which should trust the new remedy exclusively.

Even in those days the increasing speed of transportation was influencing health and disease. Dr. Washington West, of Belleville, remarked: "We go from New York to San Francisco in from four to six days—formerly in from four to six months; this annihilation of time and distance makes the diseases of one city virtually those of the other, and in fact, of the whole intervening country."

In 1882 the Society, which had 417 members, met in Quincy and elected thirty-nine delegates to the American Medical Association. Dr. Robert Boal, the president, had been in practice over fifty years. He devoted part of his address to a comparison of the ease of practice and the pleasant life of the physician of that time as contrasted with that of fifty years before and thought the doctor was losing prestige with the public. He said: "Where is the physician of the present day who would have the temerity to repeatedly bleed a patient *ad deliquium animi* and keep him nauseated for days upon tartar emetic to cut short a case of pneumonia or pleuritis?" He remarked that Illinois was "afflicted with a swarm of medical colleges" and suggested regulating them.

In discussing the practice of early years he told the following story:

"What was required for the outfit of a physician of that day and his mode of practice, is well illustrated by a story told by one of the early presidents of this Society, the late Dr. Rouse. On his arrival in the then small village of Peoria he was warmly welcomed by the only physician there. He observed that the resident doctor had a large pair of saddle-bags stuffed tolerably full, his curiosity was excited to know their contents, and upon asking the doctor what they contained, he readily opened them, and disclosed an old spring lancet, three or four pounds of epsom salts, a pound or more of calomel, a similar quantity of nitrate of potash, and from one-quarter to a half-pound of tartar emetic.

"As Dr. Rouse was a stranger, and was supposed to be unacquainted with the practice in a new country, he kindly undertook to instruct him. He informed him that sometimes when called to see a patient, if he was plethoric, he bled him, and gave a large dose of calomel, followed by epsom salts. At other times, on first seeing the case, if the tongue was coated and nausea was present, he gave an emetic of tartrate of antimony, followed in due time by the calomel and salts. If the stomach and bowels had been thoroughly evacuated, he then gave nitrate of potash and antimony in small and repeated doses, interjecting between them moderate doses of calomel. Then turning to his listener, he said in the most serious manner, "So you perceive, doctor, it is necessary to vary our practice in this new country."

Dr. Boal said that a portion of the stock in trade of Thomsonians consisted in denunciation of the "mineral and calomy doctors."

In 1884 the Society met in Chicago and elected forty-five delegates to the American Medical Association. Dr. Henry Gradle presented the first discussion on the bacterial cause of disease. According to the State Board of Health 78 physicians died in 1882-1883 at the average age of 52 years. Of all the deaths in the State in 1882-1883 the cause was given in only 22 cases, the highest number (5) from pneumonia and the next highest number from overdose of morphia.

In 1886 J. J. M. Angear, of Chicago sharply criticized Pasteur and accused him of having failed to acquaint himself with previous work and of rushing into print too quickly. He closed by deciding that there was something in his practice if not in his theory.

In 1887 the Society met in Chicago and elected forty-one of its 360 members delegates to the American Medical Association. Dr. Elias Wenger said: "The great amount of sickness in the country induced the migration thither of a multitude of adventurous quacks and pretenders, practicing under the various titles of Homeopaths, Hydropaths, Botanics, Eclectics, Unsoephists, Snappers and Spiritualists. Their qualifications consisted of a compound of ignorance and impudence."

At the meeting in 1890 Dr. Norman Bridge in his address of welcome said Chicago had an aggregate of probably 2,000 hospital beds and that many of the hospitals were managed very well. He mentioned the large number of medical schools but thought he had better leave Dr. Rauch to say what sort of work they were doing. The city had no worthy laboratories for original research nor any comprehensive medical library. The trustees of the Newberry Library were at that time developing plans for a medical library.

The Chicago meeting of 1893 had an attend-

ance of 450. In previous years it had been about 250. The entire expense of the meeting was $175. From the exhibitors they received $144.25, leaving $30.75 to be paid out of the treasury. The State Board of Health was still granting licenses to men who failed to pass their college examinations.

Dr. J. B. Maxwell, of Mount Carmel, read a paper entitled "State Care of Epileptics." His object was to arouse the profession to have something done along that line. The following year the Society endorsed a scheme for an epileptic colony.

Dr. Anne Hazen McFarland, of Jacksonville, discussed "The Lunacy Law of Illinois." Several laws regarding lunatics were enacted between 1823 and 1867. She said "In 1874 the present defective law went into operation pronouncing insanity a crime and banishing from society every one so afflicted. . . . The person is arrested, accused of insanity, placed upon trial and convicted the same as he would be for grand larceny."

In 1893 Dr. E. Fletcher Ingals in his president's address said: "In the past this Society has stood for good government, and the interests of the unfortunate, on all questions pertaining to our hospitals, the asylums for the insane and feeble-minded, the school for the deaf and dumb, and all other public charities. Our work in this direction has often ended in disappointment, but our sympathies have not grown cold, and despite reverses our efforts have been continued.

"After twenty-four years of labor in the interest of one of the most vital questions regarding the welfare of the insane it was thought a few weeks ago that we would this year surely secure a change in the barbarous laws for their commitment that would relieve this unfortunate class from the treatment accorded common criminals to which they are now subjected, while at the same time the revised law would carefully protect their rights as citizens.

"The law, however, has not yet been passed, and it is probable that it will not be at this session of the legislature."

J. J. N. Angear of Chicago read a paper entitled "Consumption Primarily a Nerve Disease," in which he said: "Since the introduction of the theory of the microbes causing phthisis, the profession have been spending their energy in trying to kill the bacilli, believing when that can be done the disease will be cured." (He was referring to a treatment of tuberculosis by rectal installation of sulphuretted hydrogen which had been paraded before the society at one time.) "Hence the intestines have been the battle ground, and the microbes have been bombarded with sulphuretted hydrogen. . . . Where are those doctors and their stink pots? The microbes echo, where!"

Dr. Fletcher Ingals suggested that the public be educated in matters affecting their health by circulars distributed through doctors' offices. This idea was studied for a year by a committee composed of Dr. Ingals, Dr. W. E. Guthrie, of Bloomington, and Dr. Sanger Brown, of Chicago.

At the meeting in 1894 this committee recommended that the work of educating the public in matters of health, the avoidance of disease and habit-forming drugs, particularly cocaine, be carried on through a permanent committee. Dr. William E. Quine opposed this and suggested that the Society's committee should cooperate with the Board of Health which should actually carry on the instruction. Dr. Quine's idea prevailed.

Dr. William O. Ensign, of Rutland, was chairman of a committee that was to have completed a report on the history of the Illinois State Medical Society for the meeting in 1894. His illness prevented the performance of this work.

At the East St. Louis meeting of 1897 President A. E. Corr, of Carlinville, said that the Society had placed on the statutes of Illinois laws creating an Institution for the Feebleminded, a State Board of Health and the regulation of the practice of medicine; one legalizing the procuring of material for dissections, called the Anatomy Act; and after twenty years of close vigilance, secured a change in the inhuman laws for the commitment of the insane; also a law tending to prevent a great deal of blindness; and was then engaged in an effort to secure a law creating a State Board of Examiners for applicants to practice medicine in the State so as to make the State Board of Health much more efficient for sanitary purposes and, he thought, would soon procure the passage of a law creating an Epileptic Colony.

Dr. Charles B. Johnson, of Champaign, said the idea of the state vaccine laboratory had its origin in the Illinois State Medical Society.

The idea of educating the public in health matters persisted and in 1903 the Chicago Medical Society began a series of public health lectures. In 1922, as most of you know, the Lay Education Committee was founded, now known as the Educational Committee. During the first two years of the committee's existence it was supported by voluntary contributions from the profession, but since that time it has spent $12,000 annually of the Society's money. All of this money has been spent either on health education for the public or in improving the quality of medical care rendered to the public.

Activities and influence of some individual members. These extracts from the Society's official proceedings show that as an organization it has sponsored and struggled to secure the enactment of laws to protect and promote health, to elevate the quality of medical care and to secure better and more humane care for the unfortunate wards of the State. The doctor as an individual has by no means limited his interest and efforts to medicine. He has been active in improving the educational facilities of the State, in promoting religious organizations, in literature, politics and even diplomacy. As successful business men the doctors have left few records.

I shall not attempt to describe except very briefly the part played by such men as Brainard, Fenger, Senn, Murphy, Billings, Davis and Ochsner. In the first place, their achievements are so great most of you are already familiar with them. In the second place, they belong almost as much to the nation as to Illinois. Finally, Dr. Pusey has recently described much more ably than I could the part they played in Chicago's development. I want to call your attention to men not so well known but who nevertheless played worthy and important parts in the development of their communities and to show that medical men all over the state have been influential in developing schools, churches, newspapers and a worthwhile community life. The list included here is by no means complete and doubtless men just as distinguished as those here mentioned are not included.

Dr. Silas Hamilton practiced near Natchez, Mississippi, before moving to Monroe County in 1830. He owned twenty-eight slaves whom he probably brought with him and freed during his lifetime. Dr. Hamilton served both as physician and clergyman. At his death he left a will which read as follows:

"Believing in the very great importance of primary schools, and desiring that my friends and relations in this neighborhood should receive the benefit of them, I give and bequeath $4,000 for the establishment of a primary school, viz: $2,000 to be appropriated to the erection of a building suitable for a school, and for a place of public worship; and $2,000 to constitute a fund for the support of a teacher."

At Otterville there is a monument erected to his memory by George Washington, one of the slaves he freed.

Dr. Rudolphus Rouse came to Peoria in 1831. He was the first president of the village board of trustees in 1835 and except for one year served continuously until city government was adopted. In 1838 there was a field of twenty candidates with nine trustees to be elected. Dr. Rouse received 127 out of 128 votes cast.

In the rear of his home he built a fine opera house where some of the foremost actors of the time appeared, because it furnished a break in the long travel between Chicago and St. Louis.

He was one of the founders of the Peoria City Medical Society in 1848, chairman of the Convention which reorganized the state society in 1850, and president of the Illinois State Medical Society in 1852.

He conceived, had sculptured and supervised the erection of a monument to the memory of himself and his family.

Dr. William Fithian was the first white child born in Cincinnati. At the time of his graduation, as was the custom in Ohio, he was made an associate justice sitting with the county judge. About 1830 he came to Danville, then a village of 200 or 300 people. He had a very large practice which extended from McLean County over into Indiana and from Iroquois to Edgar County. He was also very active in public life. He was a representative in the Ninth Assembly where Lincoln was serving his first term. He was in the State Senate from 1834 to 1838, a period of wild government spending somewhat resembling our own time. Dr. Fithian was opposed to these extravagant appropriations which were for canal and railroad building. $1,800,000 was appropriated for the Northern Cross Railroad which was to extend from Quincy to the Indiana state line. When

Dr. Fithian found he could not defeat these appropriations, he made the most of a bad situation and arranged to have that part of it running through his county built first. This took much of the appropriation. When the crash came work was abandoned for fifteen years. When it was resumed it was found that the work had been so well done it could not be abandoned and so the Wabash, which incorporated part of the Northern Cross, ran through Danville instead of following a more direct route. Dr. Fithian was a presidential elector in 1856 and took an active and influential part in the campaign of 1860 which resulted in the election of his very good friend Mr. Lincoln.

Edmund S. Kimberly came to Chicago in 1832 and immediately became interested in civic affairs, acting as clerk at the election which decided that the village should be incorporated in 1833. The same year he was elected a member of its board of trustees. As a leader in the convention in Peoria in 1844 he helped to put the public school system in effect. Three years later he championed the movement for township organizations in the state. Other offices he filled were recorder of deeds, clerk of the county, school inspector, and president of the school board.

Dr. Daniel Brainard, the founder of Rush Medical College, rode into Chicago on a shaggy Indian pony in September, 1835. He went to the law office of his old friend John Dean Caton and sought counsel as to the advisability of locating in Chicago. The lawyer advised him to sell the pony to the Pottawatomies and invest the proceeds in a desk, a shingle and an announcement in the *Democrat*. Caton gave him office space.

Dr. Brainard secured a charter for Rush in the winter of 1836-1837 a few days before the legislature granted a charter to the City of Chicago. Because of the panic of 1837 the first annual announcement was not issued until October, 1843.

Dr. Brainard was a great organizer and one of the best surgeons of his time. He was well known in Europe, particularly France, where he was made a member of some of their most exclusive scientific societies.

In addition to his professional activities he found time to run a paper. He preceded John Wentworth as editor of the *Chicago Democrat*. He also initiated publication of the first medical journal in Chicago, the predecessor of the *Medical Journal and Examiner*.

October 9, 1866, he gave his class some instructions about how to avoid cholera. That evening he began to write a paper on the subject. Only the first page was finished when he was stricken with the disease and died the next afternoon.

John Nevins Hyde said of him: "Brainard was a botanist, a geologist, excelled in literature and, above all, had the sixteenth century distinction of possessing the qualifications of a good surgeon, 'the eye of a hawk, the hand of a woman and the heart of a lion.'"

The Illinois State Medical Society was one of the first state societies to admit women to membership. Women physicians now constitute about ten per cent of our membership. The hardships of the early women physicians are illustrated by the experience of Dr. Margaret Logsdon, who lived on a farm at Sandy Ridge just below Shawneetown. She had a large obstetrical practice on both sides of the Ohio. Her house was close to the river and when Kentucky patients needed her they called across the river, she answered "coming," got in her skiff and paddled across the river. One night a prospective Kentucky father called her, she answered as usual, but arriving at the river, found her skiff gone. She wasted no time looking for her boat or trying to get another, but finding at the water's edge a log which had a branch on it, Dr. Logsdon took off her dress, tied it high up on the branch, then pushed the log before her and swam the Ohio River. Arriving on the Kentucky side, she put on her dry clothes and delivered the baby.

Dr. E. R. Roe was an early resident of Shawneetown, arriving in 1843, and for ten years he was a practitioner. Journalism at first was an avocation but later occupied all of his time. Because of his literary ability his writings were sought by the press of his day and the *Illinois Journal* of Springfield employed him as a regular correspondent. Dr. Roe edited the *Jacksonville Journal*, then the *Constitutionalist*. In the late 1880's he became editor of the *Bloomington Pantagraph*. He wrote "Virginia Rose; A Tale of Illinois in Early Days," as a prize serial in the *Alton Courier*, 1852. He had prepared this story while practicing medicine in

Shawneetown and used as its background the lawlessness of Cave-in-Rock. He wrote a number of other books. In 1876 he was elected to the Twenty-Seventh General Assembly.

Edmund Andrews, one of the founders of Northwestern University Medical School and for half a century chief surgeon for Mercy Hospital, was a geologist of repute.

Herman L. Victor Schroeder was for half a century after 1851 a notable citizen of Bloomington. He bought from the Illinois Central eighty acres where the City of Gilman now stands, laid it out in town lots and called it Schroedersville. He was probably the first man in the west to successfully raise vineyards on any important scale. Millions of his plants were sold throughout the United States and some were shipped abroad. To him the people of Illinois are largely indebted for the first practical measures toward coal mining. He engaged experts who found coal and thereupon organized the Bloomington Coal Mine of which he was twice president and in which he once owned nearly one-fifth of the stock.

I am indebted to Dr. B. E. Montgomery for data concerning men about Quincy.

Dr. Daniel Stahl, of Quincy, perhaps typified more accurately than any other the pioneer Illinois doctor's conception of patriotism seventy-five years ago. He was born in Gilserberg, Germany. He was a member of the convention that reorganized the Illinois State Medical Society in 1850. Dr. Stahl enlisted May 1, 1861 with the Union Army, served five years and retired a brevet lieutenant-colonel. His last four years of life were spent abroad because of ill health. When he died at Baden-Baden, October 26, 1874, farewell instructions to his children were: "The period during which I served in the army of the United States being the proudest of my life, I wish to preserve as heirlooms in the family my commissions and my sash." He is buried in the Protestant Episcopal cemetery of Baden-Baden beneath a plain white slab inscribed:

Daniel Stahl, M. D.
Late Brevet Lieutenant-Colonel
and Surgeon, U. S. V.

Dr. Edward G. Castle served a consul at his old home, Carlisle, England.

Dr. Francis Drude came to Quincy from Germany in 1848. He reorganized the board of health of Quincy in 1869 and served as its registrar and chief officer without any or but nominal pay for twenty years. Quincy's complete statistics antedating the State Department of Public Health are largely due to his efforts.

Dr. Joseph N. Ralston was one of the founders and first president of the Adams County Society. He was organizer and first president of the public school district and of Quincy College, a Methodist school.

When John Evans graduated from the Ohio Medical College at Cincinnati in 1838 his father gave him a pony, saddle, bridle and ten dollars. He began practice in Ottawa, returned to Ohio and finally located at Attica, Indiana. For ten years he worked to secure Indiana's first insane hospital, which he planned and later superintended. Dr. Brainard persuaded him to join the faculty of Rush Medical College as Professor of Obstetrics.

His father then advanced money which he invested in Chicago real estate so judiciously that it became the foundation for a fortune.

In 1850 he helped organize the Chicago Medical Society and to reorganize the Illinois State Medical Society, and the same year was one of the editors of the *North Western Medical and Surgical Journal,* the first medical publication in Chicago.

As a member of the City Council Dr. Evans prepared an ordinance providing for a superintendent of public schools, and it was largely through his influence that Chicago's first high school was built.

With Dr. Brainard he built the Evans Block on the east side of Clark Street just opposite the present Sherman Hotel.

From 1853-1855 his energies were devoted to the founding of Northwestern University. He secured for it valuable land, endowed it to the extent of $100,000 and had it permanently exempted from taxation. To commemorate his service the site upon which the university was erected was named Evanston and its Davis Street for his good friend N. S. Davis.

He aided in the establishment of Mercy Hospital, the Methodist Book Concern and the *North Western Christian Advocate.*

His greatest financial effort was raising funds for the building of the Chicago and Fort Wayne Railroad, which is now part of the Pennsylvania.

He was a member of the convention that nominated Abraham Lincoln for the presidency

and in 1862 Lincoln appointed him Territorial Governor of Colorado. During the next thirty-five years he took a large part in the building of railroads and the development of Colorado's resources. Mount Evans was named for him by act of the Colorado legislature. He had a large part in creating Colorado Seminary, which later became the University of Denver. In addition he gave it land and more than $150,000.

Within the last eight years of his life he constructed in Denver one of the most perfect systems of electric railways in the country.

Dr. Calvin Truesdale, for half a century a prominent practitioner in Rock Island, was a member of the first class and attended the first course of lectures delivered at Cleveland (Ohio) Medical College and was graduated from that school. He came to Rock Island in 1854 and took a great interest in public affairs. He was a member of the Illinois constitutional convention of 1870 which gave us our present organic law. His good friend, President Lincoln, appointed him postmaster of Rock Island and twice he was elected mayor.

Dr. Robert Roskoten was born near Dusseldorf on the Rhine. He was involved in the student rebellion of 1848 and barely escaped to this country where he arrived in 1850. President Lincoln appointed him to the army board of examiners and he soon rose to the rank of brigade surgeon. He was seriously wounded at the battle of Shiloh and was retired as unfit for further service. He resumed practice in Peoria for a time but eventually gave up medicine for literature. He was an accomplished linguist, speaking six languages. He wrote a creditable drama based on the Mexican Revolution involving Maximilian and his Empress Carlotta.

Dr. William R. Hamilton practiced in Peoria for many years. He fostered, built and became president of the Peoria and Rock Island Railroad. As these duties became greater he gave up the practice of medicine.

The earliest instance of group practice in Illinois was probably at Equality near Golconda. Prior to 1850 Drs. Drake, Dunn and Watkins of the "Saline" formed a partnership and took care of the practice for many miles around. Dr. Dunn served in the legislature and was a friend to both Douglas and Lincoln. He was a man of great personal bravery as indicated by testimony given by G. W. Covert in open court at Shawneetown in 1879. Logan Belt was the leader of a gang that had killed several people in a feud and had wounded Covert a number of times because he knew too much about the gang. Covert escaped to Dr. Dunn's home to have his wounds treated and Belt and his gang followed to finish him. However, the doctor refused to give him up. Covert said: "He is a bad man to fool with and the crowd went away without me."

Dr. Lucien Prentiss Cheney came to Chicago in 1850. Two years later he was appointed City Physician. As such he had the supervision of the smallpox hospital. While holding this office, he had passed an ordinance forcing vaccination upon the unprotected. This made him the dean of the preventive medicine contingent. Dr. Cheney was one of the founders of the Episcopal Church of the Atonement, which later became the Cathedral of S. S. Peter and Paul.

Dr. William M. Chambers, of Charleston, practiced medicine and surgery in Covington, Kentucky, and was the president of the Kentucky State Medical Society before he moved to Coles County in 1855. In October, 1861, President Lincoln appointed him Brigade Surgeon. He served in the army of the Cumberland until July, 1865. He was twice breveted—first as Lieutenant Colonel and then as Colonel for meritorious service and for excellence of his reports and his superior management of hospitals. He was president of the Illinois State Medical Society and of the Aesculapian Society of the Wabash Valley, and a member of the first Board of Health of Illinois.

Dr. Charles Chandler, of Cass County, is said to have been the first physician in Central Illinois to adopt the use of quinine as a remedy, the first to inflict bodily pain to counteract the failure of respiration in an overdose of opium and the first to oppose the custom of indiscriminate bleeding. Dr. Chandler probably built the first cabin in the county and in it conducted a drug store and office. To save the settlers of that territory the long trip over almost impassable clay roads to Beardstown, he and his brother erected a number of stores and shops for artisans. They also established a large general store and a pork packing plant in which they slaughtered as many as 3,000 hogs annually. Dr. Chandler was interested in religion and donated a building lot to every church in the community ex-

cept the Christian Church and for this charged but half price. He also donated land for a public park and a cemetery.

The idea of public health service as it was finally expressed in the first permanent statutes grew out of two definite conceptions. One was that "good doctors" are the most important factor necessary to good public health. The other conception was that sanitation, quarantine and hygiene are things which when properly applied will promote public health beyond the capacity of private practitioners no matter how efficient. The "good doctor" conception was the older and was probably the reason the legislature delegated to the Board of Health the regulation of medical practice.

Dr. John H. Rauch was one of the foremost health officers of his time. He had invaluable training in this respect as chief medical officer in Grant's armies during his Tennessee and Virginia campaigns. In 1860 Chicago by city ordinance abolished the health department, city physician and health officer. Two years later Dr. N. S. Davis, for forty years a leader in medicine in Chicago and Illinois, said he knew of no city except Chicago with a population of 100,000 that had neither a health officer, board of health, nor any other official sanitary organization. However, these words had no effect until Chicago was stricken by a cholera epidemic in 1866. As a result of that horrible experience Dr. Rauch, Dr. Davis and other leaders were able to secure the enactment of an ordinance by which the health department was organized on a firm basis. Dr. Rauch became sanitary superintendent from 1867 to 1873. He was responsible for the sanitary regulations following the great fire. He was responsible for moving the cemetery out of Lincoln Park. He became president of the State Board of Health when it was organized July 12, 1877. He remained as president, secretary or member of it till 1891.

During this period his influence extended far beyond the state boundaries. His most signal service was the promotion of higher medical education. After the Board of Health was established and the Medical Practice Act went into effect July 1, 1877, it was Dr. Rauch's duty as president of the State Board of Health to superintend the administration of the Medical Practice Act. His earnestness in the measure was shown by the promptness with which he had application papers prepared and the comprehensiveness of the examination questions which nongraduates were required to answer. To him more than to any one else, indeed more than to all others, is due the credit for the medical practice acts of other states, weeding out quackery and extending terms of medical colleges from three to four years, requiring additional study preliminary to conferring the medical degree.

Dr. John Arnold, of Peoria, was a personal friend of Abraham Lincoln, who appointed him U. S. Consul at St. Petersburg, Russia, during the Civil War period.

Dr. J. C. Goodhue, as councilman from the first ward, had so much to do with the ordinance to establish public schools that he is called the father of Chicago's public school system. He was a well-established and prominent practitioner when Dr. Brainard came to Chicago and with him was one of the founders of Rush Medical College.

Medical education. Until 1877 the State exerted practically no control over medical practice. Any one who wished to treat the sick could do so by holding himself out as possessing some ability along this line. When the Thomsonian school was at its height a large number of certificates were sold giving the holder the right to practice medicine without any medical study. Any man who could pay the price ($20) was permitted to prescribe for the sick and administer such remedies as were endorsed by this cult, which was founded on the use of remedies of vegetable origin. The certificate read about as follows: This may certify that we have received of ..... Twenty Dollars for the right of preparing and using, for himself and family, the Medicine and System of Practice secured to Samuel Thomson by Letters Patent from the President of the United States.

Some men were practically coerced into the practice of medicine as illustrated by Dr. Jacob Bishop of Effingham County. In early life he had secured a small medical library not with the view of practicing medicine but simply to improve himself. Later he often found himself surrounded by sick neighbors and when no physician was available he did what he could in the emergency. His work was so well done that calls on his time increased until eventually it was all taken up in the practice of medicine. His repu-

tation extended beyond his own county and he eventually developed a very large practice.

The first annual report of the Board of Health, comprising the period July 12, 1877, to December 31, 1878, states that "about 3,600 non-graduates were practicing medicine in Illinois when the Act went into effect. Of these about 1,400 have since left the state or quit practice."

Other men spent some time with a preceptor and then spent the required time at medical school or not as they elected. Dr. Joseph O. Hamilton is an example of that type. He was the first native president of the Illinois State Medical Society, being elected in 1871. Part of his early education was received in the little stone school house provided for by the will of Dr. Silas Hamilton. He began his study of medicine with Dr. Silas Parker of Athens, Ohio, and continued with Dr. William Blackstone. In 1843 he went to Jerseyville and practiced under Dr. James C. Perry for one year, after which he located in Calhoun County. Evidently he felt the need of further education and so gave up his practice and taught school. He then attended lectures at the Medical University of Missouri for one year and then returned to practice with Dr. Perry, married his daughter and became "one of the most celebrated physicians in the west." Some of his essays are found in the Transactions of the American Medical Association for 1870 and 1872.

A hundred years ago Rush was the only medical school chartered in Illinois. Since that time forty-three medical colleges have been organized. Dr. Boal in 1882 mentioned a "swarm of them." Schools have been in operation, usually for only a short time, at Galena, St. Charles, Galesburg, Quincy, Jacksonville and Rock Island.

In the early years material for dissection could be obtained only by robbing graves. Dr. G. W. Richards was mobbed, forced to leave St. Charles, and his school, the first in the State, the Franklin Medical College, was forced out of existence because some of his students had robbed a grave near Sycamore. A mob stormed the Illinois College at Jacksonville because of the grave-robbing activities of some of the students. Dr. Samuel Adams gave the mob his word that such acts would not be repeated. The school probably closed as did many others because material could not be obtained.

Our Society finally secured the enactment of laws legalizing dissection and providing lawful ways of securing bodies.

Present position—medical aspect. Consider the picture today. Cholera and yellow fever have been gone for more than half a century. Typhoid is no longer a major public health problem. The United States has a lower loss of life from diphtheria than does any other first-rate nation. The State Department of Public Health's recent bulletin says we have reached the stage where people can "take it or leave it" so far as smallpox and diphtheria are concerned. That is, they can be rendered immune or run the risk of falling a victim to them. The diarrheal diseases no longer constitute any great menace. Malaria is seldom seen in the north end of the State.

Mentally deranged patients are now treated kindly—thanks very largely to the efforts of the Illinois State Medical Society—and more effectively than ever before.

1939 was the best health year the United States has ever known. It was not only the best we have ever known but no other country of comparable size and population has ever enjoyed an equal degree of health.

In 1840 the average length of life was probably less than forty years. In Illinois it is now sixty, and you downstate folks live two years longer than we do in Chicago. In 1882-1883 the average age of Illinois doctors who died was fifty-two years. In 1939 the average age of doctors at death in the United States was 66.1 years.

However, this should be taken as a report of progress. We have not in our one hundredth year suddenly arrived at a state of diagnostic or therapeutic perfection. The mortality from diabetes is still increasing, especially among women of menopausal age and beyond, and the rise is greater in Illinois than in the country at large.

In the last twenty years 40,276 cases of smallpox with 158 deaths have been reported in Illinois and the aggregate time spent in quarantine on account of this disease by the inhabitants of this state during those two decades was 4,646 years. The aggregate outlay in money was over $2,000,000. In Massachusetts during the same twenty years 409 cases of smallpox were reported and the last case was reported in February, 1932.

The explanation is in two words: "compulsory vaccination," used in Massachusetts but unconstitutional in Illinois.

In 1880 tuberculosis, diarrhea, pneumonia and diphtheria caused the largest number of deaths. In 1938 heart disease, cancer, nephritis and cerebral hemorrhage, embolism and thrombosis led the list. In other words, we die of different causes, and our fight to control these causes is one of the pressing problems of today.

Present situation—social aspects. There is much argument today as to the distribution and availability of medical care. Undoubtedly there are in the United States some who need and want medical care and fail to get it because they refuse to accept it on the charity or near-charity basis on which they could secure it. How many such people there are no one knows. The so-called National Health Survey does not give an accurate picture. The present attitude of government employees contributes much heat but little light on the subject. Some 3,900 plans, initiated by the medical profession, for increasing the distribution of medical care to persons in the low-income group have been or are being tried.

Dr. Carl E. Black, oldest living past president of the Illinois State Medical Society, says that today there are in Pike County only twenty-five physicians, a loss in forty years of more than sixty per cent. The reason for this, he says, is the revolution in the character of medical practice. Hygiene and sanitation have brought better conditions of health. "The debt which the people owe to fly screens, refrigeration and the better preservation of meats, vegetables and fruits in decreasing disease is almost beyond computation."

A doctor thirty miles from the patient today is closer in point of time than a doctor who was only five miles away in 1840.

From its inception the Illinois State Medical Society has been interested in public health and has spent thousands of dollars of its funds to improve health conditions in Illinois. The Society and most of its members have been opposed to the extravagant expenditure of federal funds in the State. Illinois was one of the few states that did not accept federal money under the Sheppard-Towner Act, but the decline in infant and maternal mortality was as rapid in Illinois as in those states that did accept that money. Haven Emerson, in discussing the activities of the Children's Bureau, says: "I do not know of any evidence which would indicate that the progressive improvement in infant health and maternal health is in any way related to the federal assistance that has been given to the states in that regard."

Griffith says: "Unfortunately the medical profession by subtle propaganda emanating from Washington has been jockeyed into the false position of appearing to oppose for selfish reasons legislation to relieve human suffering." The pendulum has swung from the point where government took no interest to the point where it proposes to exercise complete control of all phases of medical practice. One has only to look at countries having the largest amount of government controlled medicine—Russia, Germany, France and England—to realize that as government intervention increases scientific achievement decreases.

The question is: Shall the doctor continue to care for the sick having their confidence and acting according to his own best judgment, as he has in bringing us to the highest degree of health ever attained by any nation, or shall he care for the sick according to rules laid down by federal employees after they have destroyed the patient's confidence in the doctor? The social workers and salaried reformers should realize that medical care will continue to be rendered by doctors, most of whom will still be members of the American Medical Association, unless, of course, it is proposed to lower the educational requirements of doctors as has already been done in England by a similar group.

In solving the problem of improving the quality and of extending the distribution of medical care we should bring to it the spirit mentioned by Raymond Fosdick. In a recent report of the Rockefeller Foundation he says:

"When sincere and high-minded men hold opposite views on the complex issues of a democracy and when no effective effort is made to narrow or define those differences by objective analysis, the tendency is for the differences to freeze into ideologies and thereby to shift from an intellectual to a purely emotional basis. Instead of a creative struggle of facts and ideas, conflict degenerates into a mere fight for power. But if by objective and competent study the issues are more precisely defined and the facts

more exactly known, then the conflicting views which still remain can, with reasonable good will, more readily be resolved. Certainly if by competent study we widen the area of definitely ascertained fact and relation, we shall build a more solid substructure for public and private policy."

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THE ILLINOIS STATE PROGRAM FOR CRIPPLED CHILDREN

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SPRINGFIELD, ILLINOIS

This newest Division in the Department of Public Welfare came into existence in April, 1937, financed by funds derived from the Children's Bureau of the United States Department of Labor through the appropriations for crippled children contained in the Federal Social Security Act. These funds have made it possible to extend systematic case-finding, community clinics and other welfare services to a large group of crippled and deformed children in the State of Illinois that had previously been neglected.

During the three years just past this State-wide organization has been perfected. The first step in planning for crippled children's services is to have an estimate of the numbers of such children that will probably apply for services. Accordingly, a State-wide survey through the public and other schools of the State has just been completed. This survey consists of a personal canvass of each school, both rural and city, by one of the field nurses from the Division for Handicapped Children. The results of this survey are given in Table 1. The indications are that the per capita incidence of crippled children in this State is considerably less than the average found in other states. In Illinois, upon the basis of the survey mentioned, the incidence is 3.2 per thousand of population, meaning that there are from 25,000 to 30,000 such children in the State. The 1929 census of crippled children made by the Department of Public Welfare cooperating with other state departments revealed 10,011 such children inclusive of Chicago, an incidence of but 0.7 per thousand. It is now certain that a number of crippled children were overlooked, especially in inaccessible areas and in the southern half of the State. The reason for the smaller incidence of crippled children in our State than in many others is that many of the conditions that lead to crippling have never been widely active among our population. Today

TABLE 1—SUMMARY OF COUNTY SURVEYS FOR CRIPPLED CHILDREN CLASSIFIED ACCORDING TO DIAGNOSIS

County	Total No. of Crippled children	Incidence per 1000	Percentage Distribution: Polios No.	Polios %	Spastics No.	Spastics %	Plastics No.	Plastics %	All Others
Adams	78	1.2	8	10	4	5	8	10	58
Alexander	123	5.5	9	7	3	2	12	10	99
Bond	70	4.9	8	10	7	10	8	10	47
Boone	28	1.9	2	7	1	4	6	21	19
Brown	23	2.9	1	4	3	13	3	13	16
Bureau	158	4.1	29	18	14	9	5	3	110
Calhoun	41	5.1	11	27	3	7	6	15	27
Carroll	64	3.5	14	22	2	3	4	6	44
Cass	32	1.9	4	13	2	6	1	3	25
Champaign	236	3.7	28	12	22	9	17	7	169
Christian	141	3.8	24	16	19	13	14	10	84
Clark	59	3.3	10	17	10	17	4	7	35
Clay	55	3.4	11	20	3	5	3	5	38
Clinton	47	2.2	9	19	6	13	5	11	27
Coles	101	2.7	24	24	13	13	6	6	58
Cook	1140	0.3	126	11	110	10	73	6	831
Crawford	91	4.3	17	19	10	11	20	22	44
Cumberland	46	4.4	8	17	7	15	5	11	26
DeKalb	68	2.0	5	7	8	12	4	6	51
DeWitt	74	4.0	17	23	6	8	7	9	44
Douglas	58	3.2	10	16	3	5	4	7	41
Dupage	210	2.3	36	17	14	7	13	6	147
Edgar	78	3.1	11	14	9	11	1	1	57
Edwards	32	3.9	2	6	6	19	10	31	14
Effingham	83	4.4	11	13	4	5	7	8	61
Fayette	84	3.6	16	19	11	13	8	9	49
Ford	44	2.9	11	25	5	11	5	11	23
Franklin	213	3.3	25	12	34	16	16	8	138
Fulton	104	2.4	21	20	17	16	11	10	55
Gallatin	50	5.0	6	12	4	8	1	2	39
Greene	105	5.1	15	14	7	7	11	10	72
Grundy	50	2.6	12	24	6	12	8	16	24
Hamilton	58	4.5	6	10	4	7	17	29	31

County	Total No. of Crippled children	Incidence per 1000	Percentage Distribution: Polios No.	Polios %	Spastics No.	Spastics %	Plastics No.	Plastics %	All Others
Hancock	27	1.0	4	15	5	18	2	7	16
Hardin	37	5.4	7	19	3	8	5	13	22
Henderson	16	1.8	2	13	2	13	1	6	11
Henry	272	6.2	37	13	14	5	6	2	215
Iroquois	79	2.4	22	28	4	5	4	5	49
Jackson	184	5.2	28	15	12	7	23	12	121
Jasper	67	5.2	6	9	2	3	6	9	53
Jefferson	134	4.3	22	16	19	14	20	15	73
Jersey	40	3.2	8	20	5	13	5	13	22
Jo Daviess	43	2.1	15	35	3	7	3	7	22
Johnson	51	5.0	1	2	3	6	10	20	37
Kane	249	1.9	43	17	28	11	19	7	159
Kankakee	177	3.5	29	16	29	16	5	3	114
Kendall	27	2.6	7	25	0	0	2	7	18
Knox	169	5.2	18	11	11	6	7	4	133
Lake	253	2.4	47	18	16	6	20	8	170
LaSalle	481	4.9	53	11	34	7	17	4	377
Lawrence	107	4.9	13	12	10	9	13	12	71
Lee	71	2.2	13	18	13	18	5	7	40
Livingston	110	2.8	23	21	11	10	9	8	67
Logan	287	5.9	15	5	17	6	8	3	247
McDonough	74	2.7	13	17	8	11	9	12	44
McHenry	68	1.9	11	13	8	12	3	4	46
McLean	273	3.7	47	13	15	5	28	10	183
Macon	133	1.6	29	22	13	10	8	6	83
Macoupin	183	3.8	27	14	8	4	22	12	126
Madison	313	2.2	63	20	52	13	27	9	171
Marion	113	3.2	19	17	7	6	12	11	75
Marshall	35	2.7	8	23	8	23	4	11	15
Mason	119	7.9	10	9	2	2	13	10	94
Massac	61	4.4	6	10	6	10	13	21	36
Menard	41	3.9	10	24	0	0	2	5	29
Mercer	28	1.7	5	18	3	10	1	4	19
Monroe	32	2.6	2	6	5	16	8	25	17
Montgomery	138	3.9	5	4	8	6	21	15	104
Morgan	75	2.2	17	23	10	13	4	5	44
Moultrie	30	2.3	3	10	6	20	2	7	19
Ogle	64	2.7	12	19	7	11	1	2	44
Peoria	256	1.8	45	21	43	2	11	4	157
Perry	57	2.5	12	21	11	19	3	5	31
Piatt	49	3.2	13	27	4	8	6	12	26
Pike	46	1.9	3	7	2	4	7	15	34
Pope	40	5.0	3	7	3	7	4	10	30
Pulaski	57	4.5	9	13	6	9	4	6	48
Putnam	21	4.0	1	5	2	9	3	14	15
Randolph	76	2.6	6	8	24	32	4	5	42
Richland	73	5.2	10	13	10	13	6	8	47
Rock Island	340	3.5	35	10	30	8	24	7	251
St. Clair	422	2.7	62	15	67	14	21	5	272
Saline	135	3.6	32	24	12	8	3	2	88
Sangamon	315	2.8	65	20	22	6	8	3	220
Schuyler	28	2.4	5	18	2	7	4	14	17
Scott	25	2.9	2	8	0	0	2	8	11
Shelby	73	2.9	14	19	9	12	6	8	43
Stark	42	4.6	7	17	2	5	5	12	28
Stephenson	159	3.9	24	15	5	3	7	4	124
Tazewell	231	5.0	35	15	14	6	9	4	173
Union	62	3.1	10	16	8	13	6	9	38
Vermilion	206	2.3	31	15	13	6	21	10	141
Wabash	66	5.0	9	13	9	13	11	17	37
Warren	85	3.9	20	24	5	6	4	5	57
Washington	18	1.1	3	17	3	17	1	6	11
Wayne	65	3.4	18	28	5	9	5	9	37
White	56	3.1	10	18	8	14	7	13	31
Whiteside	214	5.5	26	12	13	7	9	4	166
Will	253	2.3	25	10	27	11	15	6	186
Williamson	143	2.7	11	8	22	15	10	7	100
Winnebago	381	3.2	85	22	37	10	20	5	239
Woodford	49	2.6	10	20	3	6	6	12	30

Note: Total cases of Poliomyelitis.....1,888
Total cases of Spastics.....1,210
Total Plastic cases..... 942
All others 8,528

there is relatively little tuberculosis among children. Epidemics of poliomyelitis (infantile paralysis) have been light in our State as compared with those along the Atlantic seaboard, since there are but 200 to 800 new cases each year, these numbers being about equally divided between Chicago and rural Illinois. Since more than one-half of these recover spontaneously with little or no treatment, the number of potential cripples is correspondingly less. Previously no funds have been available for follow-up on these cases in any section of the State except in Chicago. Accidents and congenital causes for crippling are apparently as active in our population as in other states. Thus, there is a large number of children with defective mentality, with congenital defects of the central nervous system and with other congenital deformities such as clubbed feet, wry-neck, etc.

In Illinois there is no "Crippled Children's Law" but the statutes provide for a State Orthopedic Hospital (Illinois Surgical Institute for Children) which is operated in Chicago in affiliation with the University of Illinois College of Medicine. This institute is a modern, well-equipped orthopedic hospital and now has 130 beds for children beneath the age of sixteen years. This institution and the Division for Handicapped Children are collateral divisions in the Illinois State Department of Public Welfare. The former receives a biennial appropriation from the General Assembly of the State of Illinois, those funds also being used to match against Federal Funds derived from the Social Security Reserves. A State Commission for Handicapped Children to study problems affecting these persons was created by the General Assembly in 1930. This body also acts in an advisory capacity to the Division for Handicapped Children.

ORGANIZATION OF THE DIVISION FOR HANDICAPPED CHILDREN

A full-time staff was necessary to cover the proposed activities for crippled and deformed children which were to supplement existing services in down-state and rural Illinois. An orthopedic surgeon, a supervising nurse and a trained and experienced medical social worker make up

the central office staff which directs the program. Such a plan thus provides for cooperative representation of these interests in the State crippled children's program. The field staff at present is composed of nine registered public health nurses, some of whom are trained physiotherapists and of three trained medical social workers who carry out their appropriate duties by direction from the central office. A schedule of out-patient clinics is now prepared, for small cities and towns a year in advance. Local volunteer welfare agencies such as committees representing lodges, Rotary clubs and the American Legion have been helpful in aiding the location of these clinics and in providing local publicity and cooperation. Corresponding

ILLINOIS STATE DEPARTMENTS
CONCERNED WITH CARE OF CRIPPLED CHILDREN
DEPARTMENT OF PUBLIC HEALTH.
EPIDEMIOLOGICAL AND BIRTH CERTIFICATE INFORMATION. CHILD AND INFANT HYGIENE POLIOMYELITIS CONFUSION. (SERUM AND DIAGNOSTIC AID IN ACUTE POLIOMYELITIS) INTERLOCKING MEMBERSHIP WITH COMMISSION AND DIVISION FOR HANDICAPPED CHILDREN. DISTRICT HEALTH SUPERVISORS AND NURSES, CASE FINDING AND CLINIC AID.
STATE BOARD FOR VOCATIONAL EDUCATION
REHABILITATION AND VOCATIONAL EDUCATION. COOPERATION WITH COMMISSION AND DIVISION FOR HANDICAPPED CHILDREN. APPLIANCES FOR PERSONS OVER 16 YEARS OF AGE
DEPARTMENT OF PUBLIC WELFARE
DIRECTOR, A MEMBER OF COMMISSION FOR PHYSICALLY HANDICAPPED CHILDREN.
DEPARTMENT OF PUBLIC INSTRUCTION
QUALIFICATIONS OF TEACHERS FOR HANDICAPPED CHILDREN. COOPERATION WITH COMMISSION FOR PHYSICALLY HANDICAPPED BY INTERLOCKING MEMBERSHIP
DEPARTMENT OF LABOR
VOCATIONAL PLACEMENT FOR THE HANDICAPPED. COOPERATION WITH COMMISSION AND DIVISION FOR PHYSICALLY HANDICAPPED CHILDREN.
DIVISION OF CHILD WELFARE.
COOPERATION.
DIVISION FOR HANDICAPPED CHILDREN.
ILLINOIS SURGICAL INSTITUTE FOR CHILDREN.
COOPERATION BY HOSPITALIZATION.
COMMISSION FOR PHYSICALLY HANDICAPPED CHILDREN.
SUPERINTENDENT OF DIVISION (M.D.) AND STAFF.
MEDICAL ADVISORY COMMITTEE.
FILE OF CRIPPLED CHILDREN.
CASE FINDING (CENSUS).
OUT-PATIENT DIAGNOSTIC CLINICS.
CERTIFICATION OF HOSPITALS FOR ORTHOPAEDIC CARE.
CERTIFICATION OF ORTHOPAEDIC SURGEONS.
CLEARING OFFICE FOR HOSPITALIZATION.
AID FOR BRACES AND OTHER APPLIANCES.
COOPERATION WITH PRIVATE AGENCIES NOW IN FIELD.
EDUCATION OF SOCIAL, NURSING AND MEDICAL GROUPS.
FIELD STAFF (NURSES)
CASE FINDING.
ORTHOPAEDIC FIELD NURSING.
FOLLOW-UPS AFTER HOSPITALIZATION.
STANDARDS OF QUALIFICATIONS FOR ORTHOPAEDIC SURGEONS, SOCIAL WORKERS, HOSPITALS AND PHYSIOTHERAPISTS.
PROMOTION OF CONVALESCENT AND FOSTER HOME CARE.
SOCIAL SERVICE FOR CRIPPLED CHILDREN.

Figure 1

county medical societies have direct supervision of these clinics, the local physicians cooperating closely with the Division in finding and referring patients who are entitled to these services. So effective is this latter bond that during the fiscal year 1937-1938 eighty per cent of our patients were directed to the clinics by practicing physicians. Invariably groups of local physicians attend the clinics, attendance being heightened by a routine personal notification system.

The activities of the Division for Handicapped Children are aimed at prevention and early finding of conditions leading to crippling, providing diagnostic and other minor services in the out-patient clinics, providing hospital and convalescent care, arranging for follow-up after hospital and clinic visits and referral of patients to other State and private agencies. This latter function is important to complete the work which the Division for Handicapped Children has initiated.

In our State, five departments or divisions participate to some extent in activities which affect crippled children. (See Figure 1). The field personnel of the Department of Public Health visits every case of acute poliomyelitis, being instrumental in supplying diagnostic help and convalescent serum. Through these activities and other field work many crippled children are located. This same Department sends with each birth registration certificate an illustrated pamphlet supplied by this Division calling attention to the benefits of early treatment for congenital deformities, an activity which will be described later under prevention. Routine reporting of congenital deformities discovered at birth is obtained by cooperation with the birth registration section of the Division of Vital

Statistics in the Department of Public Health. The Division of Child Welfare in the Department of Public Welfare also finds many cases for us, particularly the badly neglected ones and those which are also socially dependent and neglected. The State Board of Vocational Education and Rehabilitation furnishes vocational training and appliances to eligible persons beyond sixteen years of age, who have finished the usual secondary education. In cooperation with the Superintendent of Public Instruction, the Fiscal Supervisor of the Department of Public Welfare administers annually a $400,000 State fund, supplying financial aid to individual school districts to help in transporting and schooling crippled children. Though curtailed by the present economic and labor restrictions, the State Department of Labor has an organization which functions to some extent in furnishing vocational guidance and placement to handicapped persons.

PREVENTION OF CRIPPLING INCLUDING FOLLOW-UP ON POLIOMYELITIS CASES

The early treatment of congenital conditions arranged through reports from individual physicians and from the publicity attending receipt of the pamphlet which goes to the recipient of each birth registration certificate, prevents advanced deformity and minimizes the necessity for later surgical operations in their treatment. Deformities due to the arthritis of childhood and to osteomyelitis and other infections can only be minimized by a thorough understanding of the principles of treatment of these conditions by the general physicians of the State. Through cooperation with the State Medical Society a program of education upon these conditions is under way, many addresses having been delivered by the Superintendent and other personnel of the Division. Education of physicians upon the subject of the early diagnosis and treatment of poliomyelitis has been in progress for ten years just past with increasing results. An orthopedic consulting service to advise upon the methods of early care in acute poliomyelitis was available for the first time in Illinois in 1938. Since that time, this service has been extended and perfected. So important is such a service that I wish to describe it in detail at this point. In Chicago, a compulsory hospitalization ruling of the Board of Health affects the concentration of almost every case in the city in the two large infectious disease hospitals, where orthopedic care is begun. This is followed up by private practicing orthopedic surgeons and by the orthopedic nurses of the Chicago Visiting Nurse Association. In Illinois, outside of Chicago, an orthopedic consultant from the Division for Handicapped Children makes an early visit to such cases as they are reported, in company with the District Health Supervisor of the Department of Public Health. This poliomyelitis consultant advises the Division of the cases most likely to benefit and those most urgently in need of hospitalization. Often before the quarantine is over, these patients are sent to the orthopedic wards in one of the general hospitals of the State that serve as part of the State plan for orthopedic care. Funds are not available as yet for the hospitalization of all cases in the event of a heavy epidemic, but several hundred can be provided with early hospital care each year. Physiotherapy and braces are supplied as indicated. A booklet describing in detail the positions and means of early after-care in this disease is mailed to every physician of the State who reports a case of poliomyelitis. Very little can be done in preventing cerebral palsy, but as orthopedic care becomes generalized over this State, fixed deformities in this condition will become rare. Tuberculosis of the bones and joints is but a minor problem in Illinois. Diagnosis is usually made early and adequate treatment is now the rule.

The summers of 1936 and 1937 witnessed the epidemic prevalence of poliomyelitis in both Chicago and the down-state section upon a scale equal to the severest epidemics that have ever been reported in this State. Even though the incidence of this disease did not equal that of the severe epidemics that have visited the Atlantic seaboard, nevertheless, a total of 602 cases was reported outside Cook County during these summers. The Illinois State Department of Public Health has never had funds available for systematic follow-up on these cases. Indeed, after the onset of paralysis, the disease does not long remain a problem involving communicable disease control but becomes an orthopedic problem. The majority of these cases have now been followed up through activities initiated by this Division. Approximately 50 per cent. of the cases from these two epidemics are under medical supervision in the clinics and hospitals

of this Division. Figure 2 shows the distribution of the reported cases of poliomyelitis for these years that have been seen in the clinics of this Division. One hundred and twelve reports of poliomyelitis cases were received during the summer of 1938 but upon investigation by the orthopedic consultants of the Division, but twenty-eight of these were found to be actual paralytic cases. Hospital care was furnished those who applied and who could qualify for the

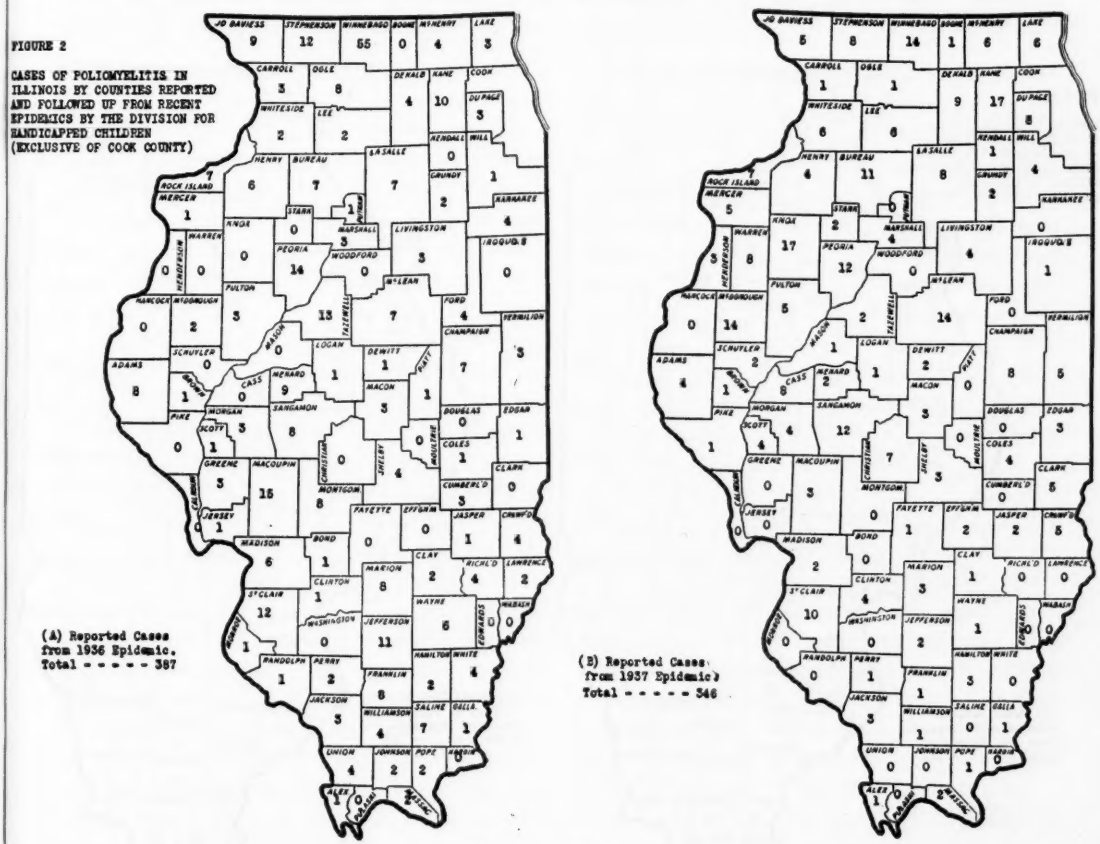


FIGURE 2
CASES OF POLIOMYELITIS IN ILLINOIS BY COUNTIES REPORTED AND FOLLOWED UP FROM RECENT EPIDEMICS BY THE DIVISION FOR HANDICAPPED CHILDREN (EXCLUSIVE OF COOK COUNTY)
(A) Reported Cases from 1936 Epidemic. Total - - - - - 387
(B) Reported Cases from 1937 Epidemic) Total - - - - - 346

Figure 2. (A-B)

government allocated a portion of the contingent fund for the purchase of the seven additional respirators which are now located in seven strategically located State hospitals from which places they can be transported to any hospital in the State where they may be needed by an arrangement that has been worked out with the State Highway Police. These seven "iron lungs" as well as a similar number of privately owned respirators will insure the availability of emergency care for acute cases of respiratory paralysis from poliomyelitis in every locality of the State.

services of the Division. In time this service should improve the quality of after-care given to the victims of this disease and thus minimize residual disability. A large share of the deformities in this disease are preventable when constant orthopedic supervision is available.

A survey of the numbers of respirators available in the State has been made by the Division, so that the location of these "iron lungs" is known whenever an emergency is made known to the Division. The executive branch of the

CASE FINDING ACTIVITIES: THE CENSUS OF CRIPPLED CHILDREN, EARLY FINDING AND REPORTING OF CONGENITAL DEFORMITIES

The field staff of nurses has been engaged about half-time during the first two years of the operation of the Division upon the census of crippled children, requested by the Commission

for Handicapped Children early in 1937. The methods used in making this census have been direct, thorough and meticulous: rural and other schools have all* been personally searched, a large task when it is recalled that there are more than twelve thousand school districts in the State. Physicians and surgeons throughout the State have been visited by these nurses, and all available records and sources containing information about crippled children have been consulted. The survey has been approached with the county as a unit. Progress of such an individually conducted survey has been necessarily slow. A large per cent of the total clinic visitation numbering 6,360, which represented 3,244 cases during the past two years, were either directly or indirectly guided to the clinics by contacts made in connection with the census. Table 1 gives a partial summary of the results of this survey.

The survey is of itself a case-finding activity, since cases needing care are seen in the clinics as soon as practicable and segregated into groups likely to benefit from orthopedic attention in hospitals. The others are cared for as out-patients in the clinics or in the offices of qualified orthopedic surgeons.

A census, however thoroughly made, even with the favorable publicity possible in rural areas, can never be a complete enumeration of the crippled residing in a given population unit, since those from the pre-school and adolescent groups are never completely uncovered. Some progress is being made with the former group through inquiries made in elementary schools, through publicity attending the pamphlet that the Division sends out with each Birth Registration Certificate, and the newly devised methods of reporting congenital defects by physicians and obstetrical nursing supervisors (described on page 000). Valuable aid is furnished in locating eligible persons from the

FIGURE 2

CASES OF POLIOMYELITIS IN ILLINOIS BY COUNTIES REPORTED AND FOLLOWED UP FROM RECENT EPIDEMICS BY THE DIVISION FOR HANDICAPPED CHILDREN (EXCLUSIVE OF COOK COUNTY)

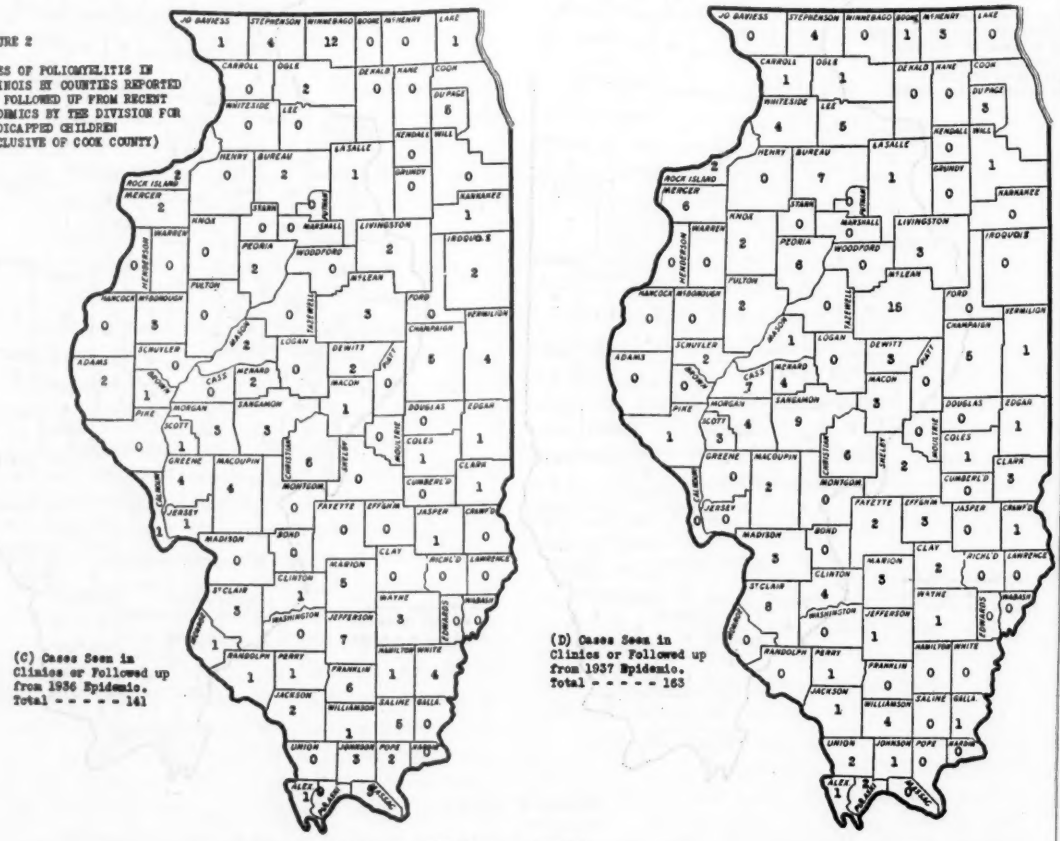

(C) Cases Seen in Clinics or Followed up from 1936 Epidemic. Total - - - - - 141
(D) Cases Seen in Clinics or Followed up from 1937 Epidemic. Total - - - - - 163

Figure 2. (C-D)

older group through cooperation with the State Board of Vocational Education and Rehabilitation. Indications are from trial resurveys carried out within the year that seventy-five to ninety per cent have been found on our first survey. Already about a thousand children have been discovered who fall into the group of incurably crippled, likely to be dependent for a large share of their lives, for whom custodial care, either by the family or in an institution is indicated.

The Division of Vital Statistics of the Illinois State Department of Public Health, through a cooperative arrangement, sends out with each Birth Registration Certificate an illustrated leaflet prepared by the Division for Handicapped Children calling attention to the benefits of early treatment of congenital deformities and birth injuries. As a result of the circulation of this leaflet, much educational work has been accomplished and sixty cases have been called to the attention of the Division during the past eighteen months. Each case thus reported has been investigated by a medical social worker. Those in need of orthopedic or plastic surgical attention have been put under care.

Colored and perforated front sheets were devised that are now in each Birth Report Book used in reporting births to the Division of Vital Statistics of the Department of Public Health. These front pages request reports of congenital deformities of the new-born directly from obstetricians and from nursing supervisors of maternity wards. It has been thought wise to arrange for these reports other than as an integral part of the Birth Certificate, avoiding handicapping a person whose defect is curable, e.g., clubbed feet. The new report of birth forms to be available in 1940 carries this information as an integral part of the document.

ORTHOPEDIC TREATMENT IN CLINICS AND HOSPITALS INCLUDING CONVALESCENT CARE

The rendering of modern orthopedic care in Illinois is but a problem of merging hospital and surgeons' services with a large number of patients who need and could benefit from them, at the same time maintaining standards of medical care upon modern levels. These problems are now for our Division, largely social in nature: supplying information, transportation and incentive to children and families that lack them.

The State has been districted for clinic administration. Clinic schedules insure a meeting at least every two to four months in each small area composed of a group of counties. On our present schedule 85 clinics are held yearly in 30 different localities. Clinics are held by fraternal and private agencies at 30 additional sites in Illinois outside of Cook County. (See Figure 3).

Three thousand two hundred and forty-four different patients have been seen either in the clinics of the Division for Handicapped Children or in the offices of orthopedic surgeons during the past eighteen months. Of these, more than 1,500 have been sent to hospitals for treatment by this date. The Department of Public Welfare gave 51,060 days hospital care to crippled children during the fiscal year 1937-1938 and 75,774 days care during the fiscal year 1938-1939. Of these hospital days, 53,530 were provided with care in the wards of the general hospitals of the State (for location see Figure 4). While this number of hospital patients is not as impressive as the statistics from other states, it must be remembered that these are almost exclusively surgical cases, as brace and consultation cases are handled in the clinics. An estimate of the volume of our hospital program can be gained from the fact that more than a third of the patient days in all the orthopedic hospitals and wards of the entire State including Chicago are made up by patients referred by our Division, although none of our patients originate in the metropolitan area.

Convalescent care in modern institutions is obtained by the Division in two places, one in the northern part of the State near Chicago, and the other in the central portion. Convalescent care is also obtained in the orthopedic wards of the general hospitals of the State at a reduced per diem rate. The indications for convalescent care in Illinois are largely medical, the return of the patient to his family at the earliest time consistent with maximum improvement being stressed. Follow-up by clinic and home visits is systematically available through the field nursing and social service staff.

PUBLIC HEALTH AND ORTHOPEDIC NURSING SERVICE IN THE DIVISION FOR HANDICAPPED CHILDREN

The field nursing service of the Division for Handicapped Children is at present composed of nine permanent nurses who have been trained in physical therapy for the purpose of giving a restricted number of treatments in the home, as directed by the orthopedic surgeons. The nine nurses are each assigned to a district consisting of from twelve to twenty counties. (See Figure 5). These orthopedic field nurses also act in an advisory capacity to local community nurses regarding orthopedic patients, find patients needing services and perform the preliminary work incident to holding a clinic, as well as follow-up after the clinic has been held. At all times, the State orthopedic field nurse serves only to aid and not to supplant the work of the local community nurse. In order that she may efficiently carry out her part of the work of the Division, she needs to be informed as to local resources for caring for the crippled child and to acquaint lay persons with the work of the Division.

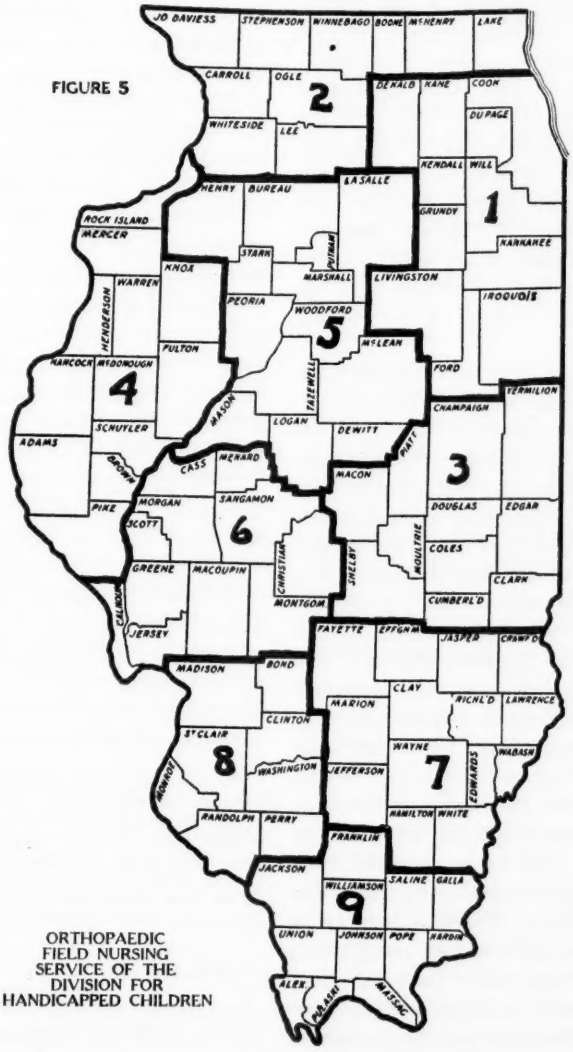
One or more nurses have assisted in each clinic held by the Division. They have been responsible for a large share of the attendance of needy crippled children to those clinics through the case-finding work of the survey in-

FIGURE 3

Figure 4
Location of Hospitals and Convalescent Homes

cluding visits in the local community to physicians and local welfare organizations. Following each clinic, minor needs of the crippled child are arranged locally by the nurses. Transportation is arranged either to one of the downstate hospitals or groups of children are escorted to the State University Hospital in Chicago on a regular schedule. Corrective shoes and some of the more simple braces are delivered and fitted by the nurses. The staff nurses made 10,040 field visits during the fiscal year 1937-1938.

FIGURE 5



ORTHOPAEDIC FIELD NURSING SERVICE OF THE DIVISION FOR HANDICAPPED CHILDREN

A staff conference of the field nurses of the Division has been held monthly, at which time the field nursing work is correlated with the medical social work and the nursing staff received instruction, including education lectures upon subjects relating to their work or to other phases of Public Health work.

PROBLEMS RELATING TO ORAL AND PLASTIC SURGICAL CARE

The Division is charged by the administrative provisions of the Federal Social Security Act with the duty of furnishing oral and plastic surgical care to children in need of it in the State outside of Chicago. These children have been seen in the out-patient clinics along with orthopedic cases. During the year all these patients, with the exception of the group of plastic surgical cases that are usually cared for by

the orthopedist, were hospitalized in the wards of five large general hospitals in Chicago where recognized oral and plastic surgeons were able to furnish expert care. Fifty-six oral surgical cases and twenty-five plastic surgical cases have been given care during the year.

Speech training following the closure of an intra-oral defect is just as important as the closure itself. There are no special schooling facilities for this type of work in the public schools of the State, so that this is a problem needing an early solution. Some preliminary conversations have been held with representatives of the University of Illinois and with the Normal Schools of the State, and it is highly probably that some cooperative arrangement will be worked out in the future. The University of Illinois College of Dentistry has been most helpful in furnishing a restricted amount of dental care, including orthodontia that has arisen as an auxiliary problem in the surgery of the jaw and face.

ADMINISTRATIVE PLANS FOR THE COMING YEAR

The problems of speech training, and of course cerebro-spastic paralysis, will need attention during the coming year. No provision is made under the existing State Laws or can be made in the administation of Federal Funds for that distressing group of permanently disabled and incapacitated persons of more or less normal mentality known as the "Custodial Group." In a survey (1936) made by the Michigan Society for Crippled Children, 510 such persons were found and investigated. Based upon a comparison of populations, Illinois has possibly two or three times this number for whom there are no provisions. Reports available from counties in which our survey is now complete, list more than 600 such individuals. Reports have still to be compiled from Cook County and from about one-fourth the remainder of the State. These persons are a particularly unhappy and forgotten group which needs either extensive, partial or total dependent care. Because of their condition and the constant care needed, they can not live a normal life and are a constant drain upon parents and guardians. In most instances they are from poor homes, and often are the factor that either keeps such homes among the sub-normal group or results in a broken home.

There are now five fully equipped orthopedic centers in the State outside of Chicago (Rockford, Peoria, Springfield, Champaign and Decatur) staffed by properly qualified surgeons who are prepared to supervise and carry out any type of modern orthopedic surgery, including the after-care of acute and convalescent poliomyelitis. Orthopedic surgeons located in three additional places are equipped to handle certain types of cases.

SUMMARY

Since the fiscal year 1936-1937, the Division for Handicapped Children in the Department of Public Welfare has had available a State-wide field nursing and social service staff to find children needing plastic surgical and orthopedic surgical care and who can qualify for publicly administered care. Case-finding activities of specialized type have been initiated for persons with congenital deformities and acute poliomyelitis (infantile paralysis). In one hundred and sixty-eight out-patient clinics held in thirty different sites during the past eighteen months, 3,240 children were seen out of the total registration of more than fifteen thousand orthopedic and plastic surgical cases. Hospital care has been furnished to more than a thousand children. The survey for Handicapped Children and other activities of the field nursing and medical social service departments of the Division are described, as well as cooperative activities with other public and private charitable organizations. The funds utilized in establishing and maintaining these services were obtained by Matching Federal Funds under the provisions for crippled children contained in the Society secuirty Act.

*A census reported by mail or made by untrained workers is unfruitful and misleading, as can be verified from the experience of the Michigan Crippled Childrens' Commission. In that state in 1934, the school census returned 4,601 reports. Of these, 3,025 cases had already been listed, 690 already discharged, leaving but 886 new names. Personal investigation of this latter number yielded but 231 new cases. In the following year (1935) 4,770 reports yielded but 169 new cases.

THE DOCTOR AND THE UNMARRIED MOTHER

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EVANSTON, ILLINOIS

From a purely obstetric point of view the problem presented by the unmarried pregnant woman does not vary from that of the woman whose

pregnancy has come about within the conventions of organized society. A discussion of the obstetric management of these patients would merely resolve itself into a discussion of obstetric practice, which is not the purpose of this communication. As the representative of the medical profession, and in a narrower sense of the specialty of obstetrics and gynecology, I wish to discuss the attitude toward the unmarried mother of a group of men whose life work is the management of the problems of reproduction and the ills peculiar to women. The men who lead obstetric and gynecologic thought in America, the men who guide the teaching of these subjects in the Universities and who direct the best known clinics and hospital services, are, almost without exception, men of broad mind, wide education, in some instances widely read outside of their special field of work. They are entirely competent to form an opinion upon the social aspect of a problem with which they are constantly in contact, for a large part of these mothers are cared for in the obstetric services of hospitals. The view-point which I shall try to convey is the one which is common to most of these men and to which I fully subscribe.

I do not believe that this problem is much more frequent now than in earlier years. Sex irregularities have always occurred. The man or woman who begins to criticize the generation immediately following that in which he or she belongs is usually showing the first sign of an oncoming senility.

Let us first discuss the unwed prospective mother. In some cases she is a woman of low standards, deficient morals and little responsibility, an individual of little value to society. Yet she must be cared for. She must be given the attention during pregnancy and labor that an enlightened society demands for every prospective mother. If the man who is equally the parent of the child were to be ill or injured he would be cared for in a hospital, or if he were imprisoned for some other offense against society, he would be warmly lodged, fed and clothed. She may be a young woman of intelligence, employed perhaps as a secretary or in some other responsible position. Marriage has been delayed, probably for lack of funds. The long controlled primitive biologic urge has escaped repression, perhaps only momentarily, but the girl finds herself among the unmarried expectant mothers. Such a young woman may possess the disposition, temperament and intelligence to make a wonderfully efficient wife and mother. She may therefore, potentially, be a greater asset to the community than at least some of those who regard themselves as being upon a higher moral plane. That a complete rehabilitation of such a young woman is possible will be testified to by any medical man who had any real breadth of observation of the problems peculiar to women. My own experience convinces me of the truth of this.

She may be a girl living at home, and though the atmosphere of homes may vary, it may be one in which the upbringing has been without fault. Again the biologic stimulus has escaped control but let us not assume the right to criticize nature for nature is wiser than we. Wthout this primeval deeply-rooted urge the race would soon die out. The control which an organized society demands, and which is entirely proper, is artificial and not the urge itself. In most cases the family of such a girl will help her in her trouble, and, if the responsibility of parenthood means anything, they should.

Every obstetrician of wide experience has met with instances of young women in families of unquestioned social standing whose pregnancies preceded their weddings. When marriage is in any event to take place soon the situation presents little difficulty except the tax which it may place upon the ingenuity of the doctor who must explain to interested and curious relatives why the baby arrived early. The chief significance of these cases finds itself in the fact that they prove the reality of the problem with which we deal and because they show that none of us, whatever the extent of our self-esteem, is far removed from it at any time.

Cases of illegitimate pregnancy are occasionally seen in children of thirteen, fourteen and more years. Sometimes they have been imposed upon by adults concerning whose moral standards we need waste no words. In any event the child has not reached the age of discretion and cannot be severely condemned.

In every case of pregnancy, whether the mother be wed or not, there is a child in utero. This child is recognized by the law and it is impossible for us morally to ignore its right to consideration. The child is entirely innocent; it had no voice in bringing about the situation

a part of which it is. It is unfair to penalize it for something for which it is entirely blameless. It may also be a potential asset to the state. The history of adoption has abundantly shown that many adopted children grow to be useful men and women. Children born within the bonds of wedlock do not invariably achieve complete success.

Whether the unwed mother comes of a family which is able and willing to stand by her or whether she must receive help from other sources, the problem which she and her infant present is a real one and it must be met fairly, efficiently and understandingly. To say that care extended to these mothers encourages immorality is absurd. Such a statement arises from prejudice rather than from fact. That a young woman would break the seventh commandment lightly because she felt sure, in case anything came of her lapse from moral rectitude, that she would be properly cared for, seems quite impossible for any experienced physician to believe, and, I am sure, will be questioned by any wise social worker.

The first class of unwed mothers should be given efficient obstetric care during pregnancy and labor and until they have recovered. It may be difficult to make anything more of one of these than what she was when the pregnancy began but, is any event, she and her infant are entitled to the essentials of obstetric care. It must always be remembered that although we may in some cases deal with an individual whose worth is not great we are in all cases dealing with a woman and a child. In the second group there is often an opportunity for constructive work, for at least some of these young women may be brought back to real usefulness and happiness. They will often respond very well to a sympathetic and understanding approach. Many of them sincerely regret their error and would welcome an opportunity for restoration to their former status.

The girl in her parents' home presents a problem, which, in my own experience, has always been manageable. If marriage is impossible or is refused, arrangements may be made for obstetric care in a distant city to which the girl may go upon any plausible pretext. I have found it possible to arrange this upon a number of occasions without the young woman being compromised. It requires a family which will stand by her, and in self respecting circles they usually will do so.

The pregnant child, though pregnant, is still a child and must be met with the same wise understanding which would be extended her were she cared for for some other reason. Although statistical studies show that these very young mothers do rather well in labor unless retarded in development or unless some deformity be present it is still essential that care be given in an institution in which the complications of labor may be adequately met. This is so clear that difference of opinion would seem impossible. The young girl, with her life still to be lived, usually a victim of surroundings rather than of any innate wickedness, which at such an early age will scarcely have become apparent even if present, should be placed where expert care may aid her to emerge from her delivery with as little physical damage as possible. It is equally important to save her from as much psychic injury as may be, to keep her from the feeling that she is condemned by everyone. Anything less than this seems a serious deviation from rudimentary humanity.

Often the first problem with which the obstetrician must deal when he sees an unmarried woman in early pregnancy is that of abortion. Many young women feel that the termination of the pregnancy is the easiest way out. It is difficult for some of them to understand why this cannot be done and in some instances they have been urged to take this course by the man concerned who is quite willing to secure his own release from embarrassment by a procedure all of the risk of which is borne by her. The physician has a double duty. First he should explain to the young woman that abortion, unless done for the unquestioned purpose of saving life, is an illicit operation and that, therefore, if she persists in having it done, it must be done by an irresponsible practitioner outside the ranks of respectable medicine. This brings with it an unquestioned risk to her life or health. She should be told that many women who have been aborted and who have apparently recovered without real trouble have been made sterile for the rest of their lives. She should also be made to understand that the commission of another wrong is never a good way to right a wrong already committed and that an abortion, which

involves the destructon of a life, is a greater wrong than the original error. It should be made clear to her that the infant, for whose presence in her uterus she is at least in part responsible, deserves fair treatment and that she has no right to deprive it of its life merely to save from embarrassment herelf and the man most concerned. All this takes time, patience and repeated explanation but it can be best done by the physician, who, if he has a sense of social responsibility, will be glad to help the young woman to a safe, sane and proper adjustment of her problem. After all, there is more to the complete fulfillment of professional responsibility than the mere carrying out of a certain number of technical procedures.

After having dealt with the social aspects of the case—and the physician should have at least an active interest in these—the question of prenatal care and care during labor comes up. In most cases these are best managed in a hospital, the prenatal observation in the out-patient department and the delivery and puerperium in the institution itself. Hospitals should recognize their responsibility. No one institution should be expected to carry too great a part of this burden but each one should do its share. To admit and care for the criminal who has been shot while resisting the police and to care for him is entirely proper. He should be adequately cared for and when well should be brought up for trial. But that the unmarried mother should be refused hospital care can only be explained as the expression of a narrow and unsocial prejudice. Fortunately this attitude is practically non-existent today among the better hospitals. I am sure that failure to provide proper care for the unmarried mother will not decrease the number of pregnancies in unmarried women and I am equally sure that it will increase the number of criminal abortions. I think I speak for the great majority of the men in the specialty of obstetrics and gynecology when I say that we believe that the unwed woman should be cared for during labor just as any other woman is. To revert to the example of the criminal, if he is to be operated upon, it will be done with the same care and with the same relief of pain as though he were an exemplary citizen. Some years ago a lady, who must have been one of the virulent reformer type, visited the obstetric clinic of a great university in the eastern part of the country. The famous professor who then headed the clinic showed her about. As they went through the hospital she turned to him and asked, "Do you have any unmarried mothers here?" He replied that they did. "I hope you don't give them any anesthesia. I hope you let them suffer as much as possible," said the visitor. The professor, whose mind and soul were as great as hers were narrow and who could speak plainly when he desired, returned a reply which left her in no doubt as to his opinion of her. Labor is not a punitive process. Social adjustments may be made after the woman and her child, and the child is an entirely innocent party, have been safely carried through it. As the mother must in many cases return to some form of employment as soon as possible after labor she should be helped through it in as good condition as posible. Indifferent obstetric care does not seem appropriate.

The normal puerperium requires eight weeks for its completion. No plans for return to work should be made earlier than this. If the young woman obtains employment in a place where her previous history is not known and no particular interest is felt in her, an inability to do a full stint of work might jeopardize her position and explanations might be fatal. The final disposition of the child is a problem which is not primarily medical but in which the physician can scarcely help being interested. A discussion of the question would be outside the scope of this paper but it is very significant that social workers of the greatest experience are coming to the view that an iron-clad compulsion of the mother to keep the child has not been found to be wise and that each case should be judged on its merits. To the physician this seems sensible. The girl who earns low wages can often just support herself. To provide proper food for an infant and care while the mother is absent at work is impossible. An arbitrary insistance, regardless of circumstances, that the mother keep the child seems unjust as it may condemn the child to insufficient feeding, poor care, illness and perhaps early death. If the mother is able to give the infant what it needs and wishes to do it, of course she should be encouraged to do so.

The attitude of the doctor toward the unmarried mother, then, is one of complete sympathy.

He regrets her error and would like to see her returned to the ranks of honest women, from which she may perhaps later establish a home of her own, or in which, at least, she may find work by which she may earn her maintenance. He would insist that during her pregnancy, labor and recovery she should be treated as any woman should be at such a time. A sincere effort should be made to return her to activity in as good physical condition as possible. An equal effort should be made to bring her through the experience with as little damage to her spirit and womanly pride as is possible. He will be glad to do his part of what he regards as a process of rehabilitation and not as an incident which is to afford opportunity for the exhibition of petty authority. All of these women cannot be made into useful members of society but enough of them can be to make the effort well worth while. Our aim should be restoration, as far as is possible, of physical and spiritual health.

ALLERGIC COMA DUE TO AMYL NITRITE. CASE REPORT

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History. H. T., female, aged 52, white, married, was referred to me by her family physician for intractable asthma of seven years' duration, following a radical sinus operation. The attacks occurred perennially, aggravated by extremes of heat and cold, worse at night, and requiring hypodermics of epinephrine several times daily. The nasal breathing was continuously obstructed. She had attended various clinics and hospitals without benefit, and was unrelieved by climatic changes. She had had various nasal operations following the radical procedure. In 1926 a tumor of the spine was removed. A son has sinusitis, and another child died of influenza. A sister is an asthmatic and sensitive to aspirin.

Physcial. At the first examination the patient was markedly dyspneic. Polypi occupied both nostrils. The pharynx was atrophic. An emphysematous chest with the classical findings of asthmatic bronchitis was present. The heart sounds were feeble, but regular. A scar of the previously mentioned spinal operation extended on the lumbar region. The blood pressure was 142/98 mm. Hg. Weight 97 pounds, temperature, 98.4 F. by mouth.

Allergy Study. A thorough allergy study was made, comprising a specialized history, complete sensitization tests by the scratch and intracutaneous routes, elimination diets and environmental procedures. This resulted in a diagnosis of extreme aspirin, pyramidon, sodium nitrite and nitroglycerin sensitivities in addition to the asthmatic bronchitis and nasal disease of bacterial origin.

The Coma. While some autogenous extracts were being prepared for the patient at the conclusion of her allergy study, her family physician excitedly phoned me one day, that following several injections of epinephrine at home, to control the intractable asthma, she suddenly became comatose. Her respirations were eight per minute; intense cyanosis developed. The pulse was rapid and feeble. Soon the patient was pulseless, and respiration apparently ceased. Resucitative measures were employed (oxygen, parenteral stimulants) for 1½ hours with a gradual return of respiratory and cardiac action. The coma, however, persisted in varying intensity for 48 hours, after which it disappeared with the gradual return of all bodily functions to normal.

Laboratory Data While in Coma. Urine showed moderate amount of granular casts. Blood Wasserman negative; leucocytes 9,400, polys. 82, lymphocytes 13, eosinophiles, 5, hemoglobin 75 per cent., r. b. c. 4,200,000. Blood chemistry, urea nitrogen 31, creatinin 1.4, sugar 105. Radial pulse varied from pulseless to 88 to 150. Spinal tap negative. EKG, auricular rate 105, ventricular rate 105, low voltage Q.R.S. Another examination showed auricular rate 90, ventricular rate 90, P-R interval .16; lead one, slightly depressed T-wave. The interpretation was "probable left ventricular weakness with so-called cardiac asthma; the present attack may have been due to coronary disease."

Further Observations and Diagnosis. Approximately 48 hours after the sudden onset of the coma, the patient gradually returned to normal. What was the cause of the coma? The history was rechecked, and a very interesting factor was then learned that was not previously obtainable in the history. It was this—just before the coma, the severe asthma was not responding to repeated injections of epinephrine, as she had become epinephrine fast. The blood pressure had risen to over 200 mm. Hg., the physician became alarmed, and thought he would try an ampoule of amyl nitrite by inhalation. Immediately she lapsed into the coma already described.

COMMENT

Drugs as a cause of untoward symptoms in allergic individuals are well known to the allergist and the experienced physician. Severe reactions, even death from aspirin have occurred.[1] Furthermore, different systems of the body may express themselves in this sensitivity, and the nervous system as a location of diversified allergic manifestations is being recognized more widely.[2-3-4]

In this case, we have an asthmatic intensely sensitive to drugs evidenced in the respiratory, circulatory and nervous systems, inhaling amyl

nitrite, and promptly developing a two-day undiagnosed coma.

Ordinarily, amyl nitrite,[5] after the inhalation of a few drops, produces flushing of the face, fulness and throbbing in the head; some headache and confusion is often present, the pulse is accelerated, and the respiration is slightly quicker and deeper. This passes off in a few minutes. In this instance an allergic patient went into a coma of 48 hours' duration after its use. As a result, the importance of a detailed allergy history, from members of the family, in the differentiation of the already multitudinous causes of coma is necessary, as an aid in its differentiation.

CONCLUSION

When dealing with an allergic individual, particularly one sensitive to drugs, prolonged coma may result from a medicine. In this case it was amyl nitrite. Therefore, in a differential diagnosis of coma, drug allergy should be considered.

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THE EFFECTS OF DRUGS ON INTELLIGENCE

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Drugs are chemicals which in the last analysis bring about certain alterations in the chemical composition of the blood fed to the brain. By effecting these chemical changes, which are quite considerable, intelligence may be increased, decreased or perverted.

Most interesting are the recent studies on the effects of benzedrine sulphate (benzyl-methyl-carbinamine sulphate) on intellectual activity. Drs. Molitch and Sullivan evaluated the effects of benzedrine on a group of 96 boys, aged ten to 17. The New Stanford Achievement Test was given to these boys. A week later the same boys took the test again about 1½ hours after 50 of them had received ten milligrams of benzedrine tablets and the remaining 46 had been given a tablet that looked the same but contained no drug of any kind.

The results were most interesting. The 46 boys who received the drugless tablet scored a net loss of 29 points, while the 50 boys on benzedrine scored a net gain of 63 points, although 26 of the 50 did not show any noticeable improvement. Some weeks later these 26 received 20 milligrams (or double the previous dose) for a third test. Twenty-four of these boys, or 92 per cent, improved their scores with a net gain of 117 points. The greatest responses were noted in language usage, geography, physiology and hygiene, and arithmetic. Normals of average intelligence and feebleminded boys responded better than normals of inferior intelligence. Grouped according to academic age, it was found that the boys in junior high school showed greater improvement on benzedrine sulphate than those in lower grades.

Also to find benzedrine sulphate of value as far as mental activity is concerned were Drs. Gwynn and Yater who administered this drug to a group of 147 normal medical students. Half the group received ten milligrams of benzedrine after breakfast and again after lunch for three successive days, the other half receiving lactose, or milk sugar. Five days later the procedure was reversed, so that the entire group was tried on both benzedrine and on the placebo, milk sugar.

One hundred and thirteen, or 77 per cent experienced a temporary increase in energy while on benzedrine sulphate, 72 or 49 per cent reported temporary exhilaration, and 61 or 41 per cent found that benzedrine increased their power of mental concentration, while eight or five per cent thought that their power of concentration was decreased.

An interesting series of studies on the effects of various drugs on the circulation of the blood in the brain was conducted by Drs. F. A. Gibbs, E. L. Gibbs and W. G. Lennox. They found that certain drugs caused an increased flow of blood to the brain and hence increased mental activity. Other drugs had just the opposite effect. An intravenous injection of adrenalin chloride caused a marked increase in the blood flow to the brain. Inhalation of amyl nitrite also caused an increase in blood flow. An intravenous injec-

tion of sodium benzoate caused a decreased flow and reduced mental activity.

The effects of all these drugs are temporary. While drugs may have pronounced effects on the processes of thinking and reasoning they do not, as far as is known at the present time, bring about permanent changes.

Drugs may also cause the thinking apparatus to go awry. Mescaline is one of the most interesting of these drugs. When taken into the body it does queer things: it opens up new and strange channels of thought and sensation.

Dr. Erich Guttman, of the Maudsley Hospital, London, England, determined to find out just what mescaline would do to the mind. Into the clinic came sixty persons of sound mind who were willing to cooperate with him to learn what effects this strange drug exerts on mentality.

The drug was given either by mouth or injected by means of a needle. In a short time strange things began to happen. The special senses became perverted: things tasted, smelled and looked different. One of the subjects found that a glass of water smelled like paraffin. Familiar voices acquired strange qualities, they became loud, shrieking and terrifying. Objects felt too hard or too soft. Metals seemed flexible like wax.

Most striking were the sensations of one's own body. Thus one subject remarked: "There was a funny sensation in my right hand. If I looked at it and observed its normal shape I had, nevertheless, the feeling that it was huge and inseparable from the surrounding space." Another remarked: "Gradually the feeling of body vanished, the position of the limbs could not be localized; the posture of the body could hardly be determined; it could scarcely be separated from its surroundings." A remarkable description was given by still another: "Involuntarily I paid attention to the position of my limbs, which I perceived in an unusually clear and distinct way. I felt my body particularly plastic and minutely carved. At once I had a sensation as if my foot was being taken off—then I felt as if my head had been turned by 180 degrees. My abdomen became a fluid, soft mass, my face acquired giant dimensions, my lips swelled, my arms became wooden, my feet turned spirals and scrolls, my jaw was like a hook and my chest seemed to melt away." Another reported: "To my great surprise I realized that I had no head, but in its place a sheet of ground glass, such as is used in a camera as a screen. Where my ears were, was an insoluble mystery; I could not find them, so long as with open eyes I followed and controlled the movements of my searching hand. I was unconscious of the position of any part of my body."

Visual hallucinations were common, as they always are when thinking becomes perverted. There were strange visions, weirdly beautiful colors, lights and flashes. Here is how one mescaline-intoxicated subject saw the world: "The visions began. I saw them when I closed my eyes, and especially when with my hands I shielded my closed eyelids from the light—never with my eyes open. At first they were no more than indefinite, white clouds moving on a dull black ground. Soon they became clearly defined, and resolved into an interlacing pattern of white lines. The background became a deeper and richer black, the lines themselves were exquisitely sharp, fine and delicate. I saw a human eye, some faces traced by the lines in their earlier stages, but for the most part the rich black ground was covered with meaningless arabesques, never still, crossing and interweaving in an endless flow. Every line was duplicated, its outline repeated again and again, growing at each repetition fainter until, infinitely multiplied, it receded into eternity. New color entered upon the scene. The white lines turned to yellow and orange, thickening until broad patches of brilliant color glowed against the black, always beautifully defined. Other colors appeared, a superb emerald green, iridescent as a humming bird's wings, red like the sound of a trumpet, a flaming orange, a vivid purple."

A more complex visual hallucination was experienced by another patient in this unusual experiment. He was possessed of greater imagination. This is what he saw: "I was transported a thousand miles away from the surface of the earth. The distance I knew to be exactly a thousand miles. I was looking at the heavenly body, which was glowing like an iridescent plum-pudding suspended in the sky exactly a hundred miles above the earth. It had became the source of the lightning. The surface of the earth was corrugated by three chains or rather massifs of snow-clad mountains. There were three continents, and it was a matter of cosmic importance on which of these three massifs the lightning

would strike. For in that continent civilization would be kindled. The surface of the three continents, their snow-clad mountain ranges, became lit up with innumerable pinpoints of white pointed flame which seemed to be beckoning to the lightning to strike them. I looked up at the heavenly body and saw, with a mixture of surprise and a sense of inevitability of the event, that it had changed into a sun god. This was a sort of Aztec figure, whose head was set in a halo of waving plumes of light which I connected somehow with the tails of flagellosperms. When I looked down on the earth again I saw that the surfaces of the mountain ranges were no longer covered by beckoning flames, but by innumerable pairs of white uplifted arms, stretched towards the Aztec figure in the sky. I looked again at him to see how he was proposing to respond to these supplications and was surprised to see that he had changed into Dr. N. who was at the same time, God. He seemed about a mile high, and I saw him in profile, dressed in a long white robe or toga, like Caesar, participating in a triumph—a wonderfully majestic figure. In his extended right hand he held the lightning in a flickering sheath of electricity."

The time sense is also upset during mescaline intoxication. This is how it feels, as described by one of the subjects. "Time seemed to stand still. I had a feeling of relief when I heard that it was five minutes later. I was dreadfully impatient. I was the more embarrassed that it was impossible for me to follow the small hand of the watch. I drank a spoonful of soup, looked around me, and looked down again at my plate; it had been in front of me for hundreds of years. But my movements and the conversation at the table, were slower than in normal life. They appeared somewhat accelerated. I must have kept everyone waiting—that was my first momentary thought. Then I realized that it was true they had been waiting aeons, that it could not have been true; and in fact, of course, was not true."

Another interesting phenomenon was the irradiation of sensations from one sense to another. This was described as follows: "When I closed my eyes, I saw lovely lines and patterns. They began to move to the rhythm of the radio outside. With the deeper tones the colors changed into blue and black, the lines became greater and more compact, the rhythms quicker. When the music became louder and lines and colors vivified, the movements became more complicated, and the colors changed towards yellow. If there were pauses in the music, or if the door banged, the whole picture stood still, a bright yellowish-red flamed up, which slowly turned into darker shades, and then the rhythmic movement went on."

Derealization, a feeling of the unreality of things, was another experience felt by those who submitted to the influence of mescaline. Said one: "The whole surroundings appeared to me as if I were returning after a long absence to a room which had previously been very familiar to me, but where now all the objects were as if they had become quite strange and were saying: 'Go away again; you will not find your previous relationship to us: you are quite strange and altered.' During the whole experiment all things and sayings of the persons around me were absolutely unintelligible to me, like the rules of a strange game. My parents were so incredibly far away, so detached—all friends, acquaintances, relatives were at a far distance."

What happens when such persons are gifted- In literature they become the Gertrude Steins, in music the Schoenbergs, in art the Dadaists and Surrealists. To a physician trained in mental phenomena the products of these so-called ultra-moderns are definitely pathological, certainly not artistic.

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The literary efforts of Gertrude Stein are nothing more than a logorrhea, a meaningless, repetitious flow of words, when the inhibition center is abolished. The music of Schoenberg and other ultra-modernistic composers is a setting down of a confusion and bable of sounds, meaningless and unrelated. The art of the Dadaists, and particularly of the Surrealists, is a recording on canvas of a disturbed intelligence.

Here, for instance, is a picture by the Surrealist, Dali. The picture depicts a naked woman reclining with head bent, her fair falling directly over her shoulders; she rests on her right muscle-bound arm, the left outstretched in a gesture of repulsion. One drawer grows out of her chest. Two drawers with knobs from her breasts, with one drawer below out of which drops a bit of rag. Two more drawers grow out of her stomach. In the background two smaller female figures sprout similar drawers as they sit on a chair of drawers.

Another picture by Dali called the Persistence of Memory depicts three watches—two made

of silver and one of gold—each limp and undulant, one draped about an unknown creature in the foreground, another hanging from a tree, folded in the middle and the third resting on its undersurface on the edge of a table, the upper portion forming a right angle with the lower. In other words, these metals have acquired wax-like consistencies, precisely as was described by the mescaline-intoxicated patients of Dr. Guttmann.

Disturbed and awry thinking is often the result of chemical reactions within the brain. This is a fact which can no longer be disputed. This disturbed function may be the result of drugs or of abnormal chemical produced within the body.

There is still another phase of chemicals and their relation to artistic creation and superior brain power. Many fascinating observations have been made between genius and certain unusual factors. For instance, the poisons of tuberculosis have been found to play a very important role in the lives of many geniuses, notably Stevenson and Chekov. Alcohol and drugs have also exerted an undeniable influence on the genesis of unusual talent.

History tells us that civilization first arose in the northern hemisphere where it grew steadily and healthfully and sturdily in close association with the peoples who inhabited the northern hemisphere. These peoples seemed, for the most part, to be a alcohol drinking lot. On the other hand, civilization lagged woefully behind in the southern hemisphere where alcohol was, for the most part, an unknown quantity. In the same way the non-alcohol drinking Gauls were unable to resist the alcohol drinking and conquering Romans. Gaul was dry; Rome was wet. Gaul was feeble and uncivilized; Rome was mighty and the center of civilization in those days. But during the tenth century civilization in the Rhine country began to rise rapidly. Alcohol had been introduced by the conquering Romans and found desirable.

In the East a similar thing happened. When the Moslems drank wine the Golden Age of Eastern civilization was in full bloom. The immortal Arabian Nights were written; mathematics was at a high stage in its development; medicine and the sciences made great progress. However, after the 15th century when strong-willed fanatics got the controlling hand and prohibited the use of alcohol as a beverage and turned the Moslems into a coffee drinking people, civilization began to set in the East. In fact, so stupid had the Moslem coffee drinkers become that they had to employ the alcohol drinking Copts to keep their accounts in workable condition.

In later years historians observed that the rise of the Dutch Republic was strongly coincident with the universal adoption of widespread drinking of gin. With increasing popularity of the ethylic fluid religious and political freedom became actualities. The arts and sciences began to flourish, and many important enterprises were undertaken.

The same is to be said for the brilliantly intellectual Elizabethan period in English history, when booze flowed freely and England produced her most interesting men and women. When the neighboring Scots adopted the use of whisky in the 18th century there followed almost at once the rise of the Caledonian peasantry.

The great races of mankind were invariably those who knew alcohol well. The same is true of the great men of mankind.

It has been said that when a man becomes drunk he gains possession of himself. He need not necessarily get drunk. He need only abolish the thousand and one inhibitions that bind him down. When inhibitions are abolished his native mental and physical energies rise to the surface. This is not only true of one man but of whole races of men.

Plato, who loved his alcohol well, wrote a very striking tribute to it in his Republic. He conceived of human beings as creatures chained with their backs to the light. Behind them moved many creatures whose shadows on the wall was all they were able to see. To the chained beings these shadows were realities. What was required more than anything else by these chained beings was something that would set them free of their chains so that they could turn around and see the realities of life. Alcohol was that freedom bringer. It abolished the inhibitions and enabled men to see things as they really are.

Most of the great of mankind were lovers of alcohol. In the dawn of Chinese civilization, the poet Li Tai-Peh sang her sweetest songs and drank freely of soy bean wine. During the sixth century before Christ some of the most delightful poetry was written by Anacreon who derived most of his inspiration from alcohol and in appreciation dedicated some of his best odes to it.

Aeschylus, the greatest of Greek dramatists,

wrote his immortal tragedies when liberally supplied with alcohol. Similarly, Eupolis and Cratinus would not lift a pen unless they had several goblets of wine. Homer drank and praised alcohol because of "the spirit it brought, to dare things high, and set up on end my thoughts."

The Latin poet Horace said that the elder Cato attained his greatest eloquence when he had been thoroughly warmed by wine. Catullus certainly drank wine freely, and Ovid and Seneca did not conceal their great love for alcohol.

The immortal tent-maker and poet, Omar Khayyam, author of The Rubaiyat, did not hesitate to confess his love for wine. When asked what his king might do for him he replied: "Place me where wine in abundance may inspire my muse." He was accordingly pensioned and sent to Naishapur where he found wine in magnificent abundance.

Another poet, Chaucer, loved wine not a whit less. His greatest work was done under its influence, and he did so well that the king granted him a daily pitcher of wine to maintain his excellence. This he did to such perfection that the king granted him a tun in 1398.

Robert Herrick's poetry took flight on wings of alcohol. Ben Jonson, the first of the Poet Laureates of England enjoyed his canary wine so well and with such excellent literary results that the king made a tun of canary wine the yearly gift to his Laureate. The Laureates who followed Johnson: Davenant, Dryden, Shadwell, Tate, Rower, Eusden, Whitehead and Wharton enjoyed the kingly gift and derived their poetic inspiration from it. To this day, the tun of canary wine goes with the poet Laureateship of England in order to insure literary excellence.

The greatest of all Elizabethans, William Shakespeare, not only adored alcohol, but also gave it a place of prominence in his immortal dramas. Some of his greatest creations were habitual drinkers: Falstaff, Caliban, Sir Toby Belch. And Beaumont, Fletcher and Hogarth in addition to other Elizabethans were great men as well as great drinkers.

The greatest of all Spanish writers, Cervantes, admitted without blushing, "I can no more give up drinking for pleasure than if I had been born for nothing else." His greatest masterpiece Don Quixote, was written when thoroughly inspired by alcohol.

The polished English essayist, Addison, kept a bottle of wine at each end of the long gallery at Holland House. Here he was in the habit of walking back and forth while writing his essays. Every once in a while he would pause and take a drink of wine to aid his thoughts. This he would continue till he attained the proper degree of exhilaration, when he set his thoughts down on paper. His neighbor, Alexander Pope, drank with him as well as with Dryden, Swift and Steele. A most merry and excellent company of men whose best work seemed to have been accomplished when their blood had been thoroughly warmed by alcohol.

Another of the immortals in English letters, John Gay, who by writing the Beggar's Opera, invented comic opera, discovered at the age of 22 that wine had the fascinating quality of aiding his poetic composition. He was not long in discovering that under the influence of alcohol he was able to produce his best work. When he ceased drinking alcohol his productions also waned. This he soon realized, for in 1730 he wrote to Swift: "I continue to drink nothing but water, so that you cannot require any poetry from me."

This was also true of Swinburne, for when he finally ceased to take alcoholic drink his productive power failed him. Oscar Wilde ascribed all his brilliance to alcoholic beverages, as did Goldsmith. Smollett drank like a fish and insisted that his friends do likewise. His contemporary, Fielding, had the most unhappy and unhealthy habit of chewing tobacco while he drank champagne. Yet this did not seem to have any ill effects on him.

Burns wrote his poetry "by the lee side of a bowl of punch, which had overset every mortal in the company except the hautboy and the Muse." Richard Sheridan could not put pen to paper unless his spirits had been loosened by wine. He would not attempt to make a speech unless he had swallowed a tumbler of raw whisky. Lamb was constantly under the influence of alcohol. He seemed to be particularly fond of gin and water.

Moore, the Irish poet, drank alcohol consistently and loudly sang its praises in his poetry. Hazlitt, the great English essayist, became dull like Swinburne had when he gave up his alcohol. When he drank, his spirits were high and he did his best work. Byron wrote and drank at the same time. His masterpiece, Don Juan, was com-

posed while Byron was under the influence of gin. Similarly, Thompson said that, "he was dull until excited by wine."

One of the greatest of all American writers, Edgar Allan Poe, was addicted to alcohol and was quite notorious during his lifetime for this failing. Yet his greatest creations came into being when he was inebriated. Walt Whitman tells us that he turned out his poetry "with the help of a bottle of port or what not." During his early years when he did not drink his literary productions were rather mediocre. But after he had become acquainted with alcohol his work improved decidedly.

Within more recent years Jack London confessed that he could not work without alcohol. "I took my drink, at once my brain loosened up and began to roll off the words." The late novelist, Harold MacGrath, stated quite frankly that he doubted if any teetotaler had ever written a great book, painted a great picture, or composed a masterpiece in music.

Many of those addicted to the use of drugs claimed that they could work best when thus artificially stimulated. Emerson knew that quite a few literary geniuses were in the habit of seeking inspiration in drugs. It was his opinion that drugs actually gave no inspiration. It was not inspiration, he insisted, but "some counterfeit excitement and fury."

To a lesser extent certain of genius have been addicted to the use of drugs, notably opium and its derivatives. Among those who are known to have been addicted to some form of drug were Coleridge, De Quincey, James Thompson, Poe, Swinburne, Rossetti and Francis Thompson.

Some of the work of these men show evidence of drugged inspiration. Coleridge's Kubla Kahn, as well as his Christabel, are works written by a mind exhilarated by drugs. Edgar Allen Poe's The House of Usher, is another literary masterpiece which gives unmistakable signs of drug-inspiration. Similarly, The City of Dreadful Night was composed by Kipling when his senses were sharpened by artificial stimulation.

It is now quite certain that drugs modify the quality of the blood fed to the brain. Mental activity may be modified by these chemicals either heightened to greater production, decreased in the quality of thinking, or cerebration may be distorted entirely.

HISTORY OF RADIUM THERAPEUTICS

FRANK E. SIMPSON, M. D.

Collaborators

J. E. BREED, M D., and J. S. THOMPSON, Ph. D.

CHICAGO

Radio Active Substances. The discovery that there are substances in ores which spontaneously give off energy in the form of radiations was due to an accident.

Professor Henri Becquerel, of Paris, was experimenting with the effects of sunlight upon some pieces of ore which contained the element uranium, a metal which had long been known.

One cloudy day, he laid the ore away in a dark drawer, thinking to continue his experiments on the first sunny day. He accidentally put the ore on a photographic plate which was wrapped in a light proof envelope. Several days later he developed the plate and found to his surprise that it showed a very dark spot where the ore had lain.

He then found, by further experiments, that the ore acted on a photographic plate, even though a thin layer of silver was put between the plate and the ore.

Continued experiments convinced him that the uranium in the ore was responsible for these effects. He therefore rightly believed that he had discovered a new property of matter. This property he called radio-activity. Becquerel announced his discovery to the Academy of Sciences in Paris on February 24, 1896.

Soon after the discovery in 1896 of the radio-activity of uranium M. and Mme. Curie found that thorium, a well known metal used in the manufacture of Welsbach gas mantles, had radio-active properties.

After the discovery of the radio-activity of thorium, M. and Mme. Curie found that pitch-blende with which they were experimenting showed a greater degree of radio-activity than could be accounted for by the presence of either uranium or thorium. They assumed, therefore, that there must be some unknown radio-active substance in the pitchblende.

Their labors finally resulted in the discovery, 1898, of an element that was several million

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times as radio-active as uranium and this they called radium.

Other radio-active elements were soon discovered by different scientists. Altogether, more than 30 elements with natural radio-active properties are now known, but of all these radium is the most important in medicine.

Sources of Radium. In addition to its occurrence in various ores, radium in the most minute quantities has been found in all parts of the Earth's crust. Scientists have detected it in very small quantities in volcanic rocks and in sea, river and spring waters. At the present time the main source of radium is pitchblende.

Formerly the American supply came from carnotite, a yellowish ore, looking not unlike sandstone. Large deposits of carnotite have been found in Colorado and Utah.

Radium may be extracted from pitchblende much more easily and economically than from carnotite. Rich deposits of pitchblende have been found in the Belgian Congo.

The richest and most extensive deposits known have recently been found in Canada.

Chemical Properties of Radium. Radium is a metal (symbol Ra) and is closely allied in chemical characteristics to barium and the alkaline earths.

When radium is first extracted from carnotite or pitchblende, it is usually obtained in the form of radium bromide. From this salt all of the other salts (radium chloride, sulphate, carbonate, etc.) may be made. Radium bromide and chloride are soluble, while radium sulphate and carbonate are insoluble in water.

Radium bromide is a white powder, looking not unlike powdered sugar.

Radium sulphate looks like yellowish sand.

For some years after its discovery radium was known only in the form of one of its salts.

In 1910, Mme. Curie and Debierne isolated the element radium and found it to be a white solid metal with a glistening look, like that of a freshly cut piece of lead.

For use in medical treatment, radium sulphate is commonly put in tiny glass tubes measuring about ½ inch in length and $\frac{1}{10}$ inch in diameter.

When radon, a gas derived from radium, is used, it is pumped off from a solution of radium chloride in water.

Radon. All scientists now agree that radio-activity is a spontaneous process of atomic transformation. In other words, the rays that are given off from radium are the result of a rapid disintegration or "explosion" of its atoms. New substances are thus produced. These new substances transform themselves in turn until at last a stable substance is reached.

If a quantity of radium sulphate is sealed in a tube, the first change that takes place results in a gas called radon.

Radon changes quickly into a solid known as Radium A. This by no means ends the process. Radium A changes into Radium B and this in turn changes into Radium C. These three substances—Radium A, B and C—are deposited as a thin invisible film on the walls of the tube. Still other changes take place. Radium C turns into Radium D, Radium D into Radium E, Radium E, and Radium F into Radium G. (The actual changes are a little more complex than we have indicated.) The last substance—Radium G—is a solid stable substance, which is almost identical with ordinary lead.

Radium depreciates by one-half in 1,760 years.

In other words, if one has 1,000 milligrams (about 15 grains) of metallic radium, one-half of it will have spontaneously disappeared in 1,760 years.

Extraction of Radon. If a quantity of radium chloride is dissolved in a bottle of water, the gas known as radon can be extracted from the bottle by a suitable apparatus. If the radon is then purified, concentrated and sealed up in a small capillary glass tube, the series of changes just described; i.e., from radon to Radium G, will take place even though no radium is present in the tube. As a result of these changes ("explosion" of the atoms) rays are given off from a tube containing radon gas exactly as if it contained radium.

While radium has, for all practical purposes, always the same strength; i.e., it gives off constantly the same quantity of rays, radon gas depreciates at the rate of approximately 16% every 24 hours.

In about thirty days, the tube of radon is practically exhausted, because nearly all of the

radon gas has changed into Radium A and there is of course no radium in the tube to furnish more radon.

A certain amount of radium gives off a definite amount of radon gas each minute, hour or day.

For example, if one has 1,000 milligrams of metallic radium, there may be extracted from it in 24 hours 160 millicuries of radon gas. The millicurie is the unit of measure used in speaking of radon and under certain conditions of filtration is equal in radiating power to one milligram of metallic radium.

The radium chloride from which radon gas is to be extracted is dissolved in about four ounces of water. Usually there should be in the solution used for this purpose from 1,000 to 2000 or more milligrams of radium element. The bottle containing the radium solution is kept permanently in a safe.

From this bottle a glass tube, several feet long, extends through the safe to the outside and is connected with a special mercury pump system.

Each day, after a pumping and purifying process lasting several hours, the radon gas is concentrated and sealed in one or more small capillary glass tubes. These tubes are about ¼ inch long and about 1/50 inch in diameter. They are at once put into smaller silver tubes to prevent breakage. At the end of about three hours, when they have gotten their greatest strength, the tubes are measured by means of the electroscope.

The tubes of radon gas may be used exactly as if they contained radium, with the exception, as we have already said, that regard must be paid to the fact that they diminish in radiating power approximately 16% each 24 hours. Standard tables facilitate the calculation of the decay of the radon.

When one speaks of "surface radium treatment" it is implied that either radium or radon is used.

When "radium puncture" is spoken of, it is evident that if radium is in the needles or "seeds" implanted in tissue, these must be withdrawn when the calculated dose has been given.

If radon is in the needles or "seeds" these may be withdrawn or allowed to remain in the tissue, depending on the type of container.

In our practice, lead radon "seeds" are used for "puncture," these being allowed to remain permanently in the tissues.

The radiations. The rays from radium and its associated disintegration products are of three types, known as the alpha, beta and gamma. The alpha rays are positively charged helium atoms traveling with velocities up to several thousand miles per second. These particles never escape from the glass tubes in which the radium or radon is sealed.

Beta rays are electrons; some of the faster beta rays have velocities almost as great as that of light. The gamma rays are not particles but are of the electromagnetic type, being similar in character to ordinary light and x-rays.

The gamma rays are distinguished by the fact that their wavelength is very short; some are shorter than the hardest x-rays so far produced. The gamma rays are of the most importance in therapy, due partly to their great penetration. In certain cases, however, the beta rays play an important role.

Historical Note. Wickham and Degrais of Paris were among the first to employ radium as a therapeutic agent.

Beginning its use in 1905, they finished the manuscript of their work—Radium Therapy—in 1909 when the French edition was published.

In North America, Robert Abbe of New York was among the first to use radium as a therapeutic agent.

His earliest paper, "Radium in Therapeutics," was published in 1904.

In Chicago, F. E. Simpson began to employ radium in 1911, this probably being its first use in Illinois. Simpson's "Radium Therapy" was published in 1922.[1]

Literature. The literature on Radium Therapy is voluminous but confusing. One who tries to cull from the mass of literature a concrete idea of when and how to use radium finds himselve involved in a maze of contradictory opinions and methods.

Principles of the Use of Radium in Tumors. Only those tumors are amenable to radiation in which the radio-sensitivity of the tumor is greater than that of the surrounding structures so that resolution of the tumor may be accomplished with preservation of the tumor bed.

An exception to this statement is seen in the action of radium on uterine "fibroids."

Here the effect in shrinking the tumor is indirect, the action of the radium being chiefly on the endometrium and blood vessels of the uterus rather than on the tumor itself.

In tumor therapy radium affects 1. the tumor cell. 2. the tumor bed.

1. *The tumor Cell.* The chief point of attack of the rays is the tumor cell, particularly its nucleus. The cell is especially vulnerable during its mitotic phase.

Radium may cause (a) autolysis—a gradual molecular disintegration of the cell. (b) Caustic destruction of the cell as when radium is inserted into a tumor. (c) Growth restraint—which may occur in certain tumors that exhibit a degree of radio resistance.

2. *The Tumor Bed.* The chief effects on the tumor bed are the obliteration of blood vessels; stimulation of phagocytosis and increase of fibrosis, processes that play a far-reaching role in the cure of malignant tumors.

Surgery Versus Radium

In a paper published a few years ago, the late E. Starr Judd said that, while he did not make great claims for the cure of cancer by surgery, he did believe that surgery had done more for the cure of malignant disease than all other methods combined. Few would deny the truth of this statement.

When to Use Surgery and When to Use Radium

Operable Tumors. We have always held the opinion that, with certain exceptions, operable tumors should be operated on.

Inoperable Tumors. Inoperable tumors may be treated with radium. There may be some differences of opinion as to what is operable and inoperable.

Some estimate that from 50% to 60% of malignant tumors seen by the surgeon are inoperable.

Should Operation Be Performed and Followed by Radium?

In some cases, as in breast cancer, complete surgical excision is the best procedure available. Many believe pre-operative and post-operative irradiation is a valuable adjunct.

In cancer of the skin, lips, oral and pharyngeal cavities and the cervix uteri, we do not advise operation prior to radium.

The objections are twofold: First, unless every cancer cell is removed, local growth may be stimulated and metastasis favored. Second, operations that injure the tumor bed make the successful application of radium more difficult. Radium has its best effects only when the tumor bed is conserved.

How to Use Radium

While good results may be achieved by different technics, we wish to point out what we believe to be the best methods and to warn those who undertake radium therapy of the dangers and disasters that lurk in some of the methods recommended in the literature.

Surface Applications of Radium Versus Radium "Puncture"

We believe surface irradiation is the method of choice and that no case should be subjected to radium "puncture," which experience has shown can be treatedf efficiently by surface irradiation.

In our practice we limit the use of radium "puncture" with rare exceptions to cancer of the tongue.

Radium Dosage

In practice the toleration of the skin is the usual factor that limits the amount of radiation. In malignant tumors, one endeavors to give the tumor the dose that the surrounding normal tissure will tolerate without serious impairing its integrity.

No one can predict with certainty the exact dose needed to cause resolution of the individual tumor.

Unfortunately, there is no definite "carcinoma" dose.

The Skin. The use of radium in diseases of the skin has been discussed fully in a previous paper.[2] Surface irradiations should be used in disorders of the skin. As a rule, radium "puncture" is contraindicated.

Epithelioma. Surgery. Very extensive, deeply infiltrating, squamous-celled epithelioma should usually be excised.

Radium. Most cutaneous epitheliomas, especially those affecting the eyelids, nose, ears and lips, may be treated with radium.

Warts and Keratoses. Warts, especially those around the nails or on the palms and soles, which often resist the ordinary dermatologic measures usually yield to radium.

Senile keratoses, which often degenerate into epithelioma, may be successfully treated with radium.

Angiomas. In angiomas ("birth marks"), radium treatment is the method of choice.

Not all cases are equally amenable to radium, but in properly selected cases it accomplishes more than anything else.

Large angiomatous tumors may disappear and leave hardly a trace behind.

The secret of cosmetic success lies in the avoidance of inflammatory radium reactions.

Keloids. These usually recur after removal by operation. In small keloids, radium is the method of choice. In large keloidal tumors, radium combined with operation is usually successful.

Epithelioma of the Lip. With small lesions, radium is the method of choice, as there is no deformity following treatment.

With larger lesions, much depends on the judgment of the operator as to whether radium or surgery should be used.

If radium is used, we advocate surface irradiations only.

Carcinoma of the Oral and Pharyngeal Cavities. In cancer of structures within the oral and pharyngeal cavities, radium treatment is the method of choice. Surface irradiations are used —directly to the tumor and from the external skin surface.

We advocate the use of large doses for short periods of time.

Carcinoma of the Tongue. Lacassagne, of the Paris Radium Institute, says that in cancer of the anterior two-thirds of the tongue, i.e., up to the lingual V, "it seems well established that the best results are at present obtained by radium puncture."

In cancer of the base of the tongue, i.e., the posterior one-third operation has been practically abandoned by all in favor of radium.

In cancer of the tongue, we combine surface irradiations and "puncture" with lead radon tubules. We have long since given up the use of glass, steel, gold, or platinum needles or "seeds" for purposes of "puncture."

Metastasis to the Lymphnodes of the Neck. When carcinoma has once left its original focus and migrated to the lymph nodes, the prognosis is serious.

Should every case of cancer of the lip, oral and pharyngeal cavities and tongue have block dissection of the neck, even though the lymph nodes are apparently not involved?

Opinions differ. Depending partly on the grade of malignancy, the lymph nodes of the neck are said to be involved in about 10% of the cases.

In the treatment, some advocate a waiting policy on the theory that the probabilities are against the involvement of the lymph nodes.

Others advise block dissection of the neck in the lower grades of malignancy and irradiation of the neck in the higher grades, the degree of malignancy being determined by microscopic examination of the primary lesion.

Much depends on the judgment of the surgeon.

Should every case of cancer of the lip, oral and pharyngeal cavities and tongue with apparent involvement of the lymph nodes have a block dissection of the neck?

Opinions differ. About 25% to 30% of enlarged nodes are said to be carcinomatous—70% to 75% inflammatory.

If only one submaxillary node is apparently involved by carcinoma, the consensus is that it should be excised.

If other nodes are involved surgical excision is seldom successful from the standpoint of a cure but it may give palliation.

Surface irradiation may also give palliation, especially in the higher grades of malignancy.

We are not in favor of radium "puncture" of carcinomatous lymph nodes.

The Respiratory System

Carcinoma of the Larynx. Radium, x-rays or surgery may be adapted to individual cases.

We have devised a new instrument[3] for the intra-laryngeal application of radon in selected cases of cancer of the larynx. If radium is used, only surface applications—intra-laryngeal and

transcutaneous—should be employed. Radium "puncture" is contraindicated.

Gastrointestinal System

In cancer of the esophagus, radium may be used, but the results are disappointing.

In cancer of the stomach, surgery is successful in selected cases. We are opposed to radium "puncture" of esophageal and stomach lesions, a procedure that has been advocated.

In operable cancer of the rectum, surgery is always indicated.

In inoperable cases, radium may be used as a palliative measure.

In using radium for rectal carcinoma, it must be remembered that the rectum is one of the most radio-sensitive of all organs and that rectal carcinoma is radio-resistant.

The Breast

Carcinoma of the Breast. Cancer of the breast is a surgical disease. Operable cases should be operated on.

Many advocate pre- and post-operative irradiation, especially the former.

Burton J. Lee stated that with surgery alone 24% of his cases were alive and well after three years; with surgery and post-operative irradiation; 39.9%; with surgery and pre- and post-operative irradiation, 52%.

Pre- and post-operative irradiation still require a great deal of investigation before it is possible to form a definite opinion as to their value.

In primary or recurrent carcinoma of the breast, radium, if used, is always applied to the surface. Radium "puncture" is contraindicated.

The Urinary System

Carcinoma of Bladder. Surgery is the method of choice.

Radium therapy is disappointing, although Barringer has reported satisfactory results in some cases.

Male Reproductive System

Epithelioma of Penis. Amputation of the penis is the method of choice.

As mutilating operations are often refused, excision of the lesion or surface applications of radium may be used in selected cases. Radium "puncture" is contraindicated.

On account of the frequency of unilateral or bilateral metastasis to adjacent lymph nodes, the prognosis must be guarded.

Carcinoma of Testicle. Pre-operative surface irradiation with surgical removal of the testicle is indicated.

Metastases may be treated surgically or surface irradiations may be used according to the indications.

Carcinoma of Prostate. As a rule, the results of radium treatment have been palliative only. Lack of success has been due largely to the deep situation of the prostate gland, the difficulty in determining the limits of the growth and the frequent presence of metastases when the patient is first seen.

Various radiation methods have been tried. The prostate has been approached through the urethra and through the rectum by means of radium tubes. Success has not generally been achieved, due largely to the radio-resistance of these growths and also because the radium tubes lie too near the growth so that the deeper parts cannot be successfully influenced without causing too much superficial destruction. Perineal implantation of various types of radium needles as well as insertion through a cystotomy wound have met with little success.

Radium and Roentgen treatment applied to the cutaneous surface have been unsatisfactory. Improvements have been seen, but clinical cures are seldom met with.

Female Reproductive System

Carcinoma of the Cervix Uteri. In the treatment of cancer of the cervix, radium has largely taken the place of surgery.

Procedures preliminary to radium treatment, such as douches, curettement, electrocoagulation, cauterization, etc., are contraindicated, as they may lead to metastasis.

Dilating and "plugging" the cervix with a string of radium tubes or implanting radium needles or "seeds" in an infected cervix are also contraindicated as these procedures may cause death from obstruction of drainage and spread of the infection.

The technic of the use of radium in cancer

of the cervix uteri has been described in previous papers.[4]

Carcinoma of the Body of Uterus. In the treatment, hysterectomy is the method of choice.

Some advise the preliminary use of radium in the interior of the uterus.

Fibromyomas of Uterus. Tumors most suitable for radium or x-rays are those not exceeding in size a four months' pregnant uterus which are causing bleeding and in which complications are absent.

Radium treatment may be carried out by intrauterine irradiation with radium or radon tubes, this treatment being often supplemented by the radium bomb applied to the cutaneous surface.

James Ewing once stated that all the bad results he had seen from the radiation treatment of "fibroids" had been in cases in which dilatation and curretage had been immediately followed by the insertion of radium.

We believe it is desirable, therefore, that a week or more should elapse between curettage and the insertion of radium into the uterus.

Myopathic Hemorrhage. In so-called myopathic hemorrhage in which there is persistent uterine hemorrhage at the menopause, without gross demonstrable lesions intrauterine irradiation is efficient.

Ductless Glands

Goiter. We believe the brilliant results of surgery are far superior to those that may be obtained with radium.

In inoperable cases, surface irradiation with radium may be used for palliation.

Thymus Gland. Enlarged thymus gland is very sensitive to surface irridation.

Lymphoid Structures

Hodgkin's Disease. Radium by the surface method may give great symptomatic relief. The final prognosis is grave.

Lymphosarcoma. Surgery is not indicated. Radium by the surface method may be used. Lymphosarcoma is one of the most radio-sensitive of all diseases. Large tumor masses usually melt away under irradiation. Some cases treated early have remained well for long periods. In most cases, the final prognosis is grave.

The Blood

Leukemia. Radium by the surface method is of great value in giving symptomatic relief which may in some cases last for several years. The final prognosis is grave.

The Bones

In certain bone disorders, such as Ewing's endothelial myeloma, surface irradiation with the radium bomb may produce marked amelioration.

We do not favor the insertion of radium needles or tubes into bony structures.

In this hasty sketch of the use of radium in some of the more common disorders we have tried to present the conservative rather than the radical side of radium therapy.

The difficulties in giving a true picture of the use of radium in malignant tumors are very great. The careful follow-up of cases over long periods of times presents almost insuperable obstacles well known to everyone.

Finally we believe one should be unbiased in tumor therapy as to the relative merits of surgery and radium.

Both should be placed at the disposal of patients solely with the idea of obtaining the best and most permanent results.

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A CENTURY OF MEDICAL PROGRESS*

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As 1840 crept across the medical horizon, there were epidemics of smallpox and typhus fever in England and a siege of cerebro-spinal meningitis was spreading throughout Europe from a focus in France. In that year Jacob Heine first described infantile paralysis as a specific condition, which was to concern medicine throughout the century and which is as yet

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unsolved. In that year also Basedow first described exophthalmic goiter. In Baltimore Chapin A. Harris founded the first school of dentistry and the first dental society, and in Illinois the Illinois State Medical Society began its career.

In the decade from 1840 to 1850 among the outstanding investigations which were to affect medical practice profoundly were the first operations done under anesthesia with ether by Crawford Long of Georgia in 1842. Eventually this work was to be repeated and introduced widely by William Thomas Green Morton in 1846 and was to yield one of the greatest blessings ever conferred on men by medical science.

In 1843 Oliver Wendell Holmes pointed out the contagiousness of puerperal fever, but it remained of course for Semmelweiss in 1847 to describe accurately the pathogenesis of puerperal infection.

In the meantime distinguished investigations were added to anatomy, physiology, pathology and chemistry by Liebig, Henle, Rokitansky, Ludwig and Virchow. This was a great period in German medicine, and the end of the century sees German medicine in a state of decline almost impossible to conceive.

Bacteriology had not yet come upon the scene, but in 1845 Langenbeck detected actinomyces, and in 1846 Claude Bernard announced the digestive function associated with the pancreas, Stokes described heart block, and Marion Sims invented the vaginal speculum.

1846—a year which was to have a profound influence on the development of medical science in the United States! For this year saw the organization and the first meeting of the American Medical Association. In the same year Sir James Young Simpson introduced the use of chloroform for anesthesia in obstetrics, and physiology was tremendously advanced by Carl Ludwig's invention of the kymograph. As the years passed, more great discoveries in the field of physiology came from Claude Bernard, Du-Bois-Reymond, Helmholtz and Fehling, who in 1848 introduced his test for sugar in the urine. As this decade ended, Addison described pernicious anemia and suprarenal disease; Claude Bernard produced diabetes by puncture of the fourth ventricle, and Helmholtz measured the velocity of nerve current. In the Mississippi Valley medicine had begun to advance tremendously by the establishment of Rush Medical College, and in 1850 the Chicago Medical Society was organized, and Daniel Drake published a treatise on "Diseases of the Mississippi Valley." In the same year Northwestern University was founded, and in that year also Chatin employed iodine for the prevention of goiter—another discovery which was to be tested and finally established almost 75 years later.

1850-1860: In the period from 1850 to 1860 the outstanding accomplishments were again related to anatomy and physiology, although now mechanical devices began to appear. Nevertheless, the machine age in medicine was not to begin until another 40 years had passed. In 1851 Helmholtz invented the ophthalmoscope, and at the same time Pravaz introduced the hypodermic syringe. Other great discoveries were Bernard's contribution regarding the vasomotor function of the sympathetic nerves, and the work by Ludwig on salivary secretion. A little later Bernard was to show the function of the vasodilator nerves.

In the meantime men had begun to use the microscope to some advantage, and the first signs of the great science of bacteriology began to appear. Rayer and Davaine announced the discovery of the anthrax bacillus, and in 1853 Cohn established the vegetable nature of bacteria. Then in 1854 Ehrenberg published a treatise in which he described a number of organisms to be seen only through the microscope. In 1855 Garcia introduced the laryngoscope, but many of the new devices were not to be fully utilized until Thomas Edison made his contribution which involved lighting by electricity. As this decade ended, one of the most significant steps which was to affect greatly the practice of medicine was the publication of a small book called "Notes on Nursing" by Florence Nightingale.

1860-1870: Outstanding among the announcements for the year 1860 was the demonstration by Pasteur of the presence of bacteria in the air. In the same year Zenker described trichinosis, and in the next year Pasteur discovered anaerobic bacteria. In 1861 also came another discovery which was to have an important effect in creating a new field in medical science, namely the construction of a calorimeter with which to study basal metabolism, this credited to Pettenkofer and Voit. In this decade also

came many important announcements related to the physiology of the brain and the functions of the eye and the ear. Then in 1862 Florence Nightingale established the first training school for nurses at St. Thomas' Hospital. Of interest especially to Illinois was the fact that the old Cook County Hospital in Chicago was established in 1863; Northwestern University Medical School under the name of Chicago Medical College and St. Luke's Hospital were founded in 1864. Truly in Chicago medicine was beginning to find its way. In 1865 the Chicago Hospital for Women was founded, and in 1867 the Chicago Board of Health was organized.

Of greatest importance was the establishment of the Army Medical Library by John Shaw Billings in 1865. Today sees the medical profession and the library authorities of the United States striving to obtain from Congress an appropriation sufficient to house suitably what has become after 75 years probably the greatest medical library in the world.

As this decade ended, the most important of all announcements was made by Brown-Séquard, who now introduced the doctrine of internal secretions. The end of the century sees internal secretions the focus of investigations that almost daily yield new information which means the control of innumerable conditions of disease.

1870-1880: The decade of 1870 to 1880 is probably marked more specifically by the establishment of institutions of education and of medical organizations than by any other single factor. In Chicago 1870 saw the establishment of Mercy Hospital and of the Woman's Medical College. The succeeding years witnessed the beginning of the American Public Health Association and many universities and institutions throughout the world. In 1876 Johns Hopkins University was founded, and in the same year the American Chemical Society. In that year also the new Cook County Hospital was begun and completed. Yet significant contributions were made to medical science, opening up new frontiers by establishing new technics of investigation. In 1874 Paul Ehrlich introduced new technics for staining tissues and blood. Scurvy was described in 1875 by Sir Thomas Barlow, Koch obtained pure cultures of anthrax bacilli on artificial media, and the machines of medical science were improved by the addition of the cystoscope, Esmarch's hemostatic and aseptic bandages. No doubt of even greater significance for the happiness of mankind was the announcement in 1876 of the first portable bathtub from England.

Then in 1878 blood pressure was measured with the sphygmomanometer, and Thomas Edison announced an incandescent electric lamp. As this decade ended, Billings and Fletcher established the Index Medicus and published the first volume of the Index Catalog.

Truly from now on medicine advances more rapidly than ever before in history, simply because of new machines to aid the senses of man and new tools with which medical science might work. In 1880 Pasteur discovered the streptococcus, staphylococcus and the pneumococcus; Eberth isolated the typhoid bacillus; Pasteur and Sternberg demonstrated the carrying of pneumonia bacilli in a healthy mouth, and the great age of bacteriology and immunology began.

1880-1890: Outstanding in this decade are the discoveries related to the germs and the methods of transmission and the technic for aiding man to combat infection. Thus 1881 saw Pasteur produce a vaccine against anthrax, and Koch's introduction of gelatin media for raising germs and steam sterilization for destroying them. In that year also Finlay suggested the likelihood that yellow fever was transmitted by a particular mosquito. In 1882 Koch discovered the tubercle bacillus, and Löffler isolated the bacillus of glanders in pure culture. In 1883 Klebs discovered the diphtheria bacillus, and in 1884 Nicolaier discovered the tetanus bacillus. By this time surgery moved forward. and the technics of new operations were being announced.

Illinois had advanced in medicine meanwhile by the establishment of the College of Physicians and Surgeons in Chicago in 1881 and of Michael Reese Hospital in 1882. Pharmacology advanced with the introduction of antipyrin, ichthyol, lanolin, sulfonal and the use of cocaine. Indeed the announcement of the germ causation of disease seemed to stimulate every aspect of medical science. Golgi stained nerve cells with silver, for which he was later to receive the Nobel Prize. Billroth and Lawson Tait and Senn and Mikulicz and Halsted were great names in surgery. In 1886 Reginald Fitz described the pathology of appendicitis. In that year also von Bergmann

introduced steam sterilization for surgical instruments. As this decade ended bacteriology and immunology continued to dominate medical discovery, and the impetus was so great that new medical organizations and institutions for research were founded almost yearly throughout the world. Conspicuous examples were the Pasteur institutes, the Royal Institute of Public Health in London, and the establishment of public health laboratories in many states in this country.

In 1887 Wagner von Jauregg proposed the concept that for certain infections there were opposing infections—a theory which led eventually to inoculation with malaria as a means of treating dementia paralytica. As this decade closed the Johns Hopkins Hospital was established in Baltimore, von Mering and Minkowski produced experimental pancreatic diabetes, von Behring discovered antitoxins, Einhorn developed a device for seeing the interior of the stomach, Pfeiffer described the influenza bacillus, and Brown-Séquard began to treat human beings with extracts of glands.

In 1890 medicine had begun the first steps toward the tremendous advances of the last fifty years which have exceeded in number and importance of investigations all of the previous centuries of the life of man. In the year 1890 a few investigations were announced which were of vital significance. Thus Koch introduced tuberculin and found that the tuberculous animal could resist reinoculation, and von Behring treated diphtheria with antitoxin. More Pasteur institutes were being opened in various sections of the world, and man's attack against the diseases caused by infection with germs began to take definite form. Within the next few years the Institute for the Study of Infectious Diseases under Koch was opened in Berlin, and the Lister Institute for Preventive Medicine was established in London. Lumbar puncture was introduced by Quincke; Halsted, most famous among American surgeons of the period, introduced the use of rubber gloves in operative surgery, and von Bergmann began the development of an aseptic ritual in surgery which has made possible the vast surgical progress of the present day. In Germany Dettweiler built the first sanatorium for patients with tuberculosis.

The years from 1890 through 1895 might well have been called the period of scientific bacteriology and immunology. Especially significant were the organization of Medical Milk Commissions to examine and certify milk as to its safety, the beginning of medical inspection of schools in New York City, the establishment of fly control for the prevention of diseases transmitted by such insects, and the discovery of the plague bacillus, as well as means by which plague is transmitted from animals to man.

Then in 1895 came a number of discoveries which also might be characterized as establishing an epoch. The first of these was the discovery by Roentgen of the use of the x-ray for determining the presence of dense tissues beneath the surface of the body, the treatment of lupus with ultra-violet light by Finsen, the demonstration of the malarial parasite in the mosquito by Ronald Ross, and the use of serum against snake venoms by Calmette. Truly this was a year of vast importance for the lives of people throughout the world, since the medical discoveries that have been mentioned were merely the first inroads into the unexplored areas of medical science. Each of these investigations was to yield the development of a new specialty in medical science; each of them was to affect profoundly the materials used by the scientific investigator in the further study of disease.

In 1890 the representatives of 55 medical colleges met in Nashville, Tennessee, and agreed that the medical curriculum should consist of a minimum of three years of not less than six months each, with graded courses. The number of medical colleges gradually changed until there were 166 medical colleges in the United States. Then began the work of the Council on Medical Education and Hospitals, and the establishment of an advanced curriculum. Today there are in the United States 77 medical colleges, of which ten give only the first two years and one the last two years. There are 66 medical colleges which require from two to four years of preliminary college education, four years of medical education, and in most instances an internship before the young man can secure a diploma or a license to practice. The extended medical education was of course brought about largely by the vast expansion of medical knowledge and particularly by the development of the armamentarium of

medical practice due to the application in medical science of many discoveries made in the field of mechanics and electricity. For instance, one finds in the reports of 1890 a statement by Dr. George F. Fiske on the use of the phonograph in the testing of hearing. Little did he realize the extent to which the audiometer would be developed by 1940 and the manner in which thousands of persons would be tested by methods which were laughed at in his day.

From 1895 to 1900 investigations continued to be concentrated primarily on immunology and on the bacteria. The filterable viruses were investigated by Löffler; Ramon y Cajal published his monumental thesis on the texture of the nervous system; direct bronchoscopy was introduced by Killian, and Ehrlich demonstrated the side chain theory of immunity.

Americans need not be reminded that in 1899 Reed, Carroll, Lazear and Agramonte demonstrated the transmission of yellow fever by the mosquito, which was to make possible the elimination of yellow fever from the civilized world. Such discoveries gave impetus to the founding of schools of tropical medicine and investigative institutes throughout the world.

With the turn of the century medicine moved on into a new stage. The hospital came to be more and more the center of medical care. Nurses' training schools were established. Technicians began to aid the work of the laboratory investigator. The x-ray was applied to the treatment of cancer, and new methods of investigation revealed new disease syndromes formerly not susceptible of diagnosis. In 1901 Bordet and Gengou demonstrated complement fixation, which was soon to yield the Wassermann test. Landsteiner described the phenomenon of iso-agglutination which made possible blood transfusions. Takamine isolated the active principle of the adrenal glands, and endocrinology began to be a science.

Institutes for the study of infectious diseases began to spring up throughout the world. The Rockefeller Institute for Medical Research was founded in New York, and the Instituto Oswaldo Cruz opened in Rio de Janeiro. In Copenhagen a State Serum Institute was established. Then came the announcement of the discovery of the quartz mercury vapor lamp by P. C. Hewitt, which in later years was to prove to be a means of controlling rickets. Attention began to be given to the question of pain in childbirth, and Steinbuchel introduced morphine-scopolamine anesthesia for that purpose. In 1903 came the demonstration of local anaphylaxis, and the identification of serum sickness with that condition. Robert Koch stressed the danger of the healthy carrier of typhoid as an agent of infection. The string galvanometer was invented by Einthoven, and thus came the first impetus toward the development of electrocardiography. Indeed the stimulus given to the advancement of medical science by the discoveries of the period from 1890 to 1900 was so great that in every year thereafter the discoveries of each year were so numerous and so significant as to challenge even a listing.

Thus 1905 alone saw the discovery of the parasite of syphilis by Schaudinn and that of whooping cough by Bordet and Gengou. In that year came the discovery of procaine, the use of parathyroid extract for tetany, information regarding the transmission of sleeping sickness, new staining methods of nervous tissue and for the spirochetes, and the first successful flight in an airplane by the Wright Brothers.

Most significant among the discoveries of the next five-year period, namely that up to 1910, was the establishment of the doctrine of allergy by von Pirquet, as well as the introduction of the Wassermann test; Barany's theory of nystagmus; the concept of accessory food factors, first seriously considered by Gowland Hopkins; the use of pituitrin in obstetrics by Blair Bell; the introduction of the cutaneous test for tuberculosis; the demonstration of tick-transmission of Rocky Mountain fever; Buerger's description of thrombo-angiitis obliterans; the introduction of vaccines against typhoid fever; the experimental production of poliomyelitis by Flexner, and the great culmination in 1910 with the introduction of arsphenamine by Paul Ehrlich.

Now this period might truly be called the adaptation of the machine age in medical science. Up to this time diagnosis had depended largely on the use of the unaided five senses of man, with perhaps such simple devices as the stethoscope and the thermometer. Now came the period when electricity began to be employed for the lighting of the interior cavities of the body, and the x-ray began to be widely used for the demonstration of changes beneath the surface. New

apparatus appared in the laboratory, and chemistry began to be widely employed for determining the extent to which the physiology of the body was changed. Medical attention began to concentrate upon the blood as the tissue of the greatest significance in the maintenance of life.

Especially significant in the period from 1910 to 1920 was the description of bacterial endocarditis by Libman. Carrel's work in tissue culture and transplantation, Cushing's studies of the pituitary gland, and the optical researches of Gullstrand were important. Then came the naming of the vitamins by Casimir Funk, Pavlov's establishment of conditional reflexes, and immunization against diphtheria by the use of toxin-antitoxin. The van Slyke technic for estimating nitrogen, the Folin technic for estimating amino-acids, and Cannon's studies of the relationship between the emotions and the functions of the body were outstanding. The x-ray was improved by the use of pneumoperitoneum as introduced by Weber, the Coolidge tube and the Potter-Bucky diaphragm.

This too was the period of the World War, with new technics for the treatment of war wounds, the introduction of poison gases, methods for averting their evil effects, new studies of gas gangrene and the establishment of trench fever and trench mouth as widespread diseases.

Attention began to be given now, with the coming of the industrial age, to occupational diseases, and the industrial physician became a new type of specialist.

In the latter half of this period came the description of encephalitis lethargica as a widespread condition, more recently related to the polioencephalitis of horses. In this period also was established by Alice Evans the relationship between Malta fever and the contagious abortion of cattle. Wagner von Jauregg treated paresis or dementia paralytica by the inoculation of the patient with malaria—a significant step which was to lead eventually to the introduction of fever treatment for a wide variety of conditions and indeed the establishment of fever treatment as a new specialty. The use of roentgenography was still further improved by the application of the x-ray with injection of air into the spinal cord and brain as a means of determining the presence of tumors—a procedure accredited to Dr. Walter Dandy.

In this period also the surgery of the brain began to become a common procedure with the leadership of Dr. Harvey Cushing. In this connection Weed and McKibben showed that intravenous injections of hypertonic solutions would lower the pressure within the skull.

Medicine turned its attention now toward the application of some of the new knowledge of the vitamins for the prevention and treatment of disease. Cod liver oil, which had been discarded because it yielded little more in the way of calories than did butter, was found to be the richest known source in nature of vitamin D. Rickets, once a widespread disease, began to yield to the application of this knowledge. Huldschinsky proved that ultra-violet rays from the mercury vapor quartz lamp could control rickets. Mellanby produced rickets experimentally and treated the experimental condition successfully with cod liver oil.

1920-1930: The curve of medical discovery continued to rise rapidly. New pathways of medical discovery were opened, each of which yielded an increasing ratio of magnificent observations. In 1920 Noguchi discovered the organism responsible for spirochetal jaundice. Rubin in New York developed a test for sterility which involved the use of the x-ray following the injection of air into the fallopian tubes. Previously spinal puncture had been employed for study of the spinal fluid, and now direct puncture of the ventricles was introduced. The Wassermann test began to be improved upon and modified by a variety of procedures.

The year was one which saw the founding of innumerable institutions for the study of immunity and for the advancement of medical science. Moreover, in the score of years from 1900 to 1920 there had begun to develop the profession of social service. Great societies were formed for the investigation and for the promulgation of knowledge concerning individual diseases. Special groups were formed for the care of mothers, for the care of children, for occupational diseases, for mental conditions and for the promotion of hygiene in general.

Then in 1921 came the conclusion of an investigation which was again to establish the mastery of scientific medicine over what had been previously a well nigh uncontrollable disease. This was the year in which Banting and Best and

Collip and Macleod announced the isolation of insulin as the active principle of the pancreas concerned with the metabolism of sugar. Their discovery was a culmination of a series of observations which had begun wth Aretaeus thousands of years before. Up to this time juvenile diabetes had been an invariably fatal disease. Now children properly treated could be provided with a prognosis of almost a normal life expectancy. Out of this discovery came a tremendous stimulation for the study of all of the glands of internal secretion in the human body. Indeed so tremendous was the stimulus in this period to the sciences concerned wth nutrition and with the glands that the period from 1920 to 1940 might well be called the epoch of the vitamins and the endocrines, exactly as the previous thirty years might well be called the epoch of bacteriology and immunology. While attention was given primarily at this time to the glands and to the vitamins, every other phase of medicine likewise made progress. Kahn introduced his new precipitation test for syphilis; surgery of the chest became a well established procedure; George and Gladys Dick discovered the hemolytic streptococcus specific for scarlet fever and devised tests for determining susceptibility, methods of prevention and methods of treatment.

Applying to the x-ray still another technic, Graham and Cole introduced examination of the gallbladder by x-rays following the injection of specific substances which localized in the gallbladder. Especially important in this period also were the advancements related to anesthesia. The fundamental discoveries of Long, Morton and Horace Wells concerning the use of ether and nitrous oxide began to be supplemented by a wide variety of anesthetic substances. Luckhardt studied acetylene and established the use of ethylene. These discoveries were to be followed later by the use of such substances as vinethene and cyclopropane. Moreover, local anesthesia, spinal anesthesia, block anesthesia and similar procedures made of anesthesia a specialty in medicine as important as any of the other thirty different categories into which the actual practice of medicine may now be divided.

During the early part of this decade Whipple in Rochester, New York, and Minot and Murphy in Boston had been giving special attention to the incurable disease which afflicted mankind—pernicious anemia. Now their discoveries culminated with the introduction of a diet of raw liver for this disease, which eventuated in the development of preparations which will overcome pernicious anemia and which have turned a once invariably fatal condition into one regularly controlled by medical science.

1930-1935: As 1929 ended, extracts of liver were definitely established in the treatment of pernicious anemia, and the Nobel Prize in medicine for 1934 was awarded to Doctors Whipple, Minot and Murphy for their research. Today we know that the liver is a vast storehouse of chemical substances associated with protection of the body against many diseases and deficiencies.

Among the hazards of industry, attention began to center particularly on toxic gases, such as carbon monoxide, and on such poisonous substances as lead, arsenic and various aniline derivatives used in paints, dyes and varnishes. Now it was found that the taking into the body of drugs such as amidopyrine, dinitrophenol and benzene derivatives would cause a sudden precipitate drop in the white blood cells in many people. This condition became established as granulocytopenia or malignant neutropenia.

Industrial diseases came definitely to be recognized as one of the most vital branches of medical practice.

This period saw also the introduction of a special alum precipitated toxoid which seemed to be well nigh the ultimate development in protection against diphtheria. In 1933 an epidemic of what was called "American sleeping sickness" appeared, later to be called encephalo-poliomyelitis, and ultimately to be traced to animal carriers and to the equine encephalitis which had been widespread in the world among horses. horses.

Now too attention centered further on the glands so that new extracts were prepared of the pineal gland, capable of producing normal size in dwarfed rats, and of the cortex of the adrenal, important in the attack on Addison's disease and other deficiencies. Surgery began to reach a peak with the development of new technics, new anesthetics and surgical teams. In this period a lung was removed completely from the human body because of the presence of cancer. Five years later the patient from whom the lung was removed was able to run up a flight of steps

as proof of his complete recovery. Large portions of the pancreas were removed successfully. Portions of the parathyroid gland were removed in surgical investigations, and interesting results were developed by cutting portions of the sympathetic nervous system. Such an operation was applied also for the prevention of pain in the presence of incurable carcinoma. Now also a new type of physiologic surgery appeared involving operations on the nervous system to control hypertension. Another extraordinary development was the artificial respirator, which was to be known throughout the world as the iron lung, and proved to be of great significance in keeping alive persons paralyzed by infantile paralysis or by other conditions affecting the nervous system.

Many years had passed without any significant development for the control of osteomyelitis. Now a new biologic principle was introduced with the development of the so-called maggot treatment. This, nevertheless, did not seem to be the ultimate, and the end of the decade was to see the development of a new derivative of sulfanilamide with special virtues against the staphylococcus.

The significant results achieved in the control of deficiency diseases led to investigations for special substances which might be of aid in various diseases in which the primary difficulty was weakness of the musculature. Feedings were attempted with glycine and its derivatives, and the next ten years were to see gelatin vaunted also for this purpose. Yet neither of these methods achieved sufficient repute to indicate permanent value. Among the curiosities in medicine which developed during this decade was the successful birth and rearing of quintuplets in Canada.

Culminating also in this period were investigations of social-medical character conducted by various groups who were planning a wider distribution of medical service. Thus 1932 saw the report of the Committee on the Costs of Medical Care and of the Commission on Medical Education. Subsequently came the report of the American Foundation Studies in Government, the National Health Survey and the so-called National Health Program. Associated with these reports a vast propaganda swept the United States in an endeavor to bring about a revolution in the system of medical service leading toward the adoption of a nation-wide plan for compulsory sickness insurance, if not, indeed, a complete state medical service. Activities of the medical profession resulted eventually in recognition of the necessity for medical leadership in gaining wider distribution of medical service while sustaining its principles which have given American medicine its prominent position. Eventually these principles were concentrated by the American Medical Association into a simple platform:

1. The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. Th extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

1935-1940: Outstanding among the developments in medicine for the last five-year period were the development of protamine insulinate and crystalline zinc insulin in the treatment of diabetes, the use of mandelic acid in infections of the urinary tract, the development of sulfanilamide, sulfapyridine and sulfathiazol for streptococcus, staphylococcus and other infections. Benzedrine was adapted to a variety of conditions. Frozen serums were introduced as a method of preserving the qualities of the blood for therapeutic purposes, and blood banks began to be established for the preservation of human blood, plasma and serum to be used in transfusions.

New methods of treating dementia praecox with insulin and metrazol shock attracted world-wide attention. Several vitamins were isolated in pure form, and new specific serums

were developed for some of the unusual types of infections with pneumonia. New electrical devices were originated to indicate the extent of activities within the brain. It was shown, moreover, that the virus of infantile paralysis enters the body in most instances by way of the nose or gastrointestinal tract and may pass from the body in various ways. Nicotinic acid, derivative of vitamin B, was found to be specific in the control of pellagra in human beings and in black tongue in dogs. Vitamin B_1 was isolated in crystalline form as thiamin chloride, and it was discovered that there are actually widespread deficiencies of this vitamin in the American diet. A new vitamin called K, derived from alfalfa, soy bean oil and other vegetable oils, was found to be useful in jaundice when surgery is contemplated and in other conditions in which the prothrombin in the blood is inadequate to permit coagulation. Heparin was derived from liver, muscle, blood and other tissues and was found to be important in preventing clotting of the blood. It is used to prevent post-operative thrombosis and also in the treatment of embolism. New hormones were isolated from the glands concerned with sex. The seat of human emotions was determined to be the hypothalamus in the brain.

It was proved to be possible to transplant the cornea of the eye, and studies began to be made with an apparatus called the cyclotron, an atom-smashing machine which it was believed would be of virture in the treatment of cancer. Another derivative of vitamin B, called vitamin B_6, was then found to be associated with various disturbances of the skin, and a new surgical operation was developed to aid persons with otosclerosis. Another operative procedure was found for overcoming paralysis of the vocal cords which sometimes follows operation on the thyroid gland in which there is cutting or damage to the nerves of the vocal cords. Extended studies were made on the physiology of the human being in high altitudes—of the utmost importance in association with the advancement of aviation.

Then, as the decade passed, medicine mourned the deaths of many great physicians whose careers had marked a period significant beyond any similar period in the history of man. The names of Frank Billings, John B. Murphy and L. L. McArthur were outstanding among leaders in the state of Illinois. The names of Harvey Cushing, William and Charles Mayo, Alexander Lambert, George H. Simmons, Hideyo Noguchi and many others might be cited among those who had contributed vastly to new types of organization, investigation and leadership, which had given the United States a position of preeminence in medical practice.

EPITOMIZED RECORD OF PROGRESS OF MEDICINE DURING THE LAST HUNDRED YEARS*

1840—1940

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Detailed record of the Progress of Medicine During the Last Hundred Years is here epitomized. Members are asked to read it carefully. In this epitome reference is made to a number of items of more than passing interest to Illinoisians.

1840—Jacob Heine describes infantile poliomeylitis.
Basedow describes exophthalmic goiter.
Henle publishes statement of germ theory of communicable diseases.
Clarke describes sleeping sickness in Sierra Leone.
Medical Department of Kemper College (St. Louis) first medical school west of the Mississippi.
Brompton Hospital for Consumption and Diseases of the Chest (London).
Free Vaccination Act (3-4 Victoria, cap 39) England.
École préparatoire de médecine at Tours.
G. J. Mulder founds chemistry of proteins
Chapin A. Harris founds first dental school and society (Baltimore).
Illinois State Medical Society organized
1840-49—Pandemic cholera.
1841—Henle's Allgemaine Anatomie published.
Medico-Psychological Association (London) founded.
Académie royale de médecine (Belgium) founded.
Dieffenbach treats stammering by section of the lingual muscles.
Kölliker describes development of spermatazoa.
Longet describes innervation of the larynx.
Longet allocates voluntary movements and sensation to the anterior and posterior column of the cord.
1842—J. R. Mayer states law of Conservation of Energy.
Rokitansky publishes treatise on pathology.
Long operates with ether anesthesia.
Wöhler effects synthesis of hippuric acid from benzoic acid.
Wöhler effects proteolysis.
Berard differentiates between septicemia and pyemia.
Liebig publishes treatise on organic chemistry.
Diffenbach publishes treatise on strabismus.
Bartolomeo Signorini excises lower jaw (September 27).
Anatomical Institute and New Canton Hospital (Zürich) opened.
Joussens (Brussels) introduces spot (colored pin) maps for localizing infectious diseases.
School of Pharmacy (Pharmaceutical Society of Great Britain) in London.
Henle and Pfeufer found Zeitschrift für rationelle Medecin (Zürich).
Wunderlich founds Archiv für physiologische Heilkunde (Stuttgart).
1842-4—Relapsing fever epidemic in Scotland.

Supplement to "LOOKING BACKWARD FROM OUR HUNDREDTH BIRTHDAY." CENTENNIAL NUMBER, May, 1940.

1842-50—Cerebrospinal meningitis in United States.

1843—O. W. Holmes points out contagiousness of puerperal fever.

Dubini discovers ankylostoma duodenale.

Carl Ludwig investigates mechanism of urinary secretion.
Klencke inoculates rabbits with tuberculosis.

Charles Gerhardt obtains acetanilide.

Charles Robin discovers OIdium albicans.

Kychler introduces test types.

Wheatstone bridge invented.
Simpson, Huguier and Liwisch introduce uterine sound.

Farr publishes life-table.

Sydenham Society founded (London).

École préparatoire de médecine at Dijon.

Société de chirurgie (Paris) founded.

1843-55—Chadwick reports on intramural burial in English towns.

1844—Rokitansky demonstrates tubercular nature of Pott's disease.

A. J. Balard discovers amyl nitrate.

Grüby discovers Trichophytin tonsurans as cause of herpes tonsurans.

Metropolitan Health of Towns Association (London) founded.
Society for Improvement of the Condition of the Laboring Classes (London) founded.

New York Pathological Society founded (Incorporated 1886).

Société centrale de médecine vétérinaire (Paris) founded.

Royal College of Veterinary Surgeons (London) founded.
Association of Obstetricians and Gynecologists (Berlin) founded.

Negri first obtains smallpox vaccine by inoculation from cow to cow.

Dr. Horace Wells discovers anesthesia.

Robert Remak discovers the cardiac ganglia, which are regarded as the generators of cardiac muscle activity.

1845—Queen's College (Belfast) founded.

Virchow elucidates embolism as the cause of pyemia.
Virchow and Hughes Bennett describe leukemia.

Andrew Buchanan investigates coagulation of the blood.

Langenbeck detects actinomyces.
University of Honduras (Tegacigalpa) founded (opened 1847).

Academia médico-quirurgica española (Madrid) founded.
Veterinary Society in Berlin.

1845-61—Rynd (Dublin) employs hypodermic injections.

1846—Weber brothers discover inhibitory effect of vagus nerve.
Morton introduces ether anesthesia.

Marion Sims invents vaginal speculum.

Claude Bernard discovers digestive function of pancreas.
Stokes describes heart-block.

Leibig discovers tyrosin.

Elias Howe patents sewing machine.

Royal Saxon Academy of Sciences (Leipzig) founded.

Smithsonian Institution of Washington founded.
American Medical Association organized (first meeting, Philadelphia, 1847).

Pathological Society (London) founded.

1846-8—Dysentery and typhus in Europe.

Kölliker describes smooth muscle.

1846-9—Great famine and fever period in Ireland.

1846-51—Epidemic cerebrospinal meningitis in Sweden.

1847—The American Medical Association organized.
Helmholtz publishes treatise on Conservation of Energy.

Virchow founds Archiv für pathologische Anatomie (Berlin).
Joule determines mechanical equivalent of heat.

Sir J. Y. Simpson introduces anesthesia in obstetrics.

Semmelweis discovers pathogenesis of puerperal fever.
Donders elucidates movements of the eyes.

Carl Ludwig invents Kymograph.

Gerlach injects capillaries with carmine stain.

K. B. Reichert obtains oxyhaemoglobin.

James Young distils petroleum.
Royal Academy of Sciences founded at Vienna.

New York Academy of Medecine founded (Incorporated 1851).
Warren Anatomical Museum (Havard University).

O. W. Holmes appointed Parkman professor of anatomy at Harvard.

1847-9—Dysentery pandemic in United States.

University of Messina closed.

1847—Charles Babbage invents the ophthalmoscope.

1848—Helmholtz locates source of animal heat in the muscles.
Claude Bernard discovers glycogenic function of the liver.

Du Bois-Reymond publishes treatise on animal electricity.

Fehling introduces test for sugar in urine.

Société de biologie founded (Paris).

University of Wisconsin (Madison) founded.
American Association for Advancement of Science founded.

School of Veterinary Medicine at Cordova (Spain).

English Public Health Act creating general and local boards of health passed.

Elizabeth Blackwell, the first woman to receive M.D. degree.

1848-9—Cholera reaches England and Scotland.

1848-51—University of Pavia closed.

1848-52—Second French Republic.

1848-53—Indian Government constructs Ganges Canal and restores Delhi Canal.

1848-58—General Board of Health (England).

1849—Addison describes pernicious anemia and suprarenal disease.

Claude Bernard produces diabetes by puncture of the fourth ventricle.

Marion Sims operates for vesico-vaginal fistula.

Virchow professor of pathology at Würzburg.

J. M. Mitchell publishes treatise on cryptogamous origin of malarial fever.

Sédillot performs gastrostomy.

Millon introduces reagent for proteins.
John Snow publishes views on water-borne cholera.

James Thomson establishes absolute scale of temperature (Thermometry).

Hutchinson invents spirometer.

Physico-Medical Society at Würzburg.
Central Board of Health (Canada) organized.

Royal Canadian Institute (Toronto) founded.

1850—University of Pisa reopened.
Helmholtz measures the velocity of nerve current.

Clausius demonstrates and establishes second law of thermodynamics (Carnot, 1824).

Waller states law of degeneration of spinal nerves.

Rayer and Davaine discover anthrax bacillus (Polender, 1849).
Thomas Way demonstrates purification of sewage by fertilization of soil.

Vierordt introduces sphygmograph

Daniel Drake publishes treatise on Diseases of the Mississippi valley.

William Detmold (New York) opens abscess of the brain.

Northwestern University (Chicago) founded.

Report on sanitary condition of Massachusetts (Lemuel Shattuck).

Steady decline of population in Ireland (end of famine and fever).

Royal Scientific Society of Dutch East Indies (Weltvreden) founded.

Chicago Medical Society organized (April 19).

Metropolitan Interments Act (England).

Women's Medical College of Pennsylvania (Philadelphia) founded.

Epidemiological Society (London) founded.

1850-52—Chatin employs iodine for prophylaxis, of goitre.

1851—University of Minnesota (Minneapolis) founded.

Helmholtz invents ophthalmoscope.
Claude Bernard explains vasomotor function of sympathetic nerves.

Ludwig and Rahn investigate nerves of salivary secretion.

Michaelis publishes Das Enge Becken.

Funke Discovers hemoglobin.
Fairet describes circular insanity.

Nélaton describes pelvic hematocele.

University of Pavia reopened (November 5).

Medical Faculty of Georgetown University (D. C.) founded.

Wiener medicinische Wochenscrift founded.
1851-3—Pravaz introduces hypodermic syringe.

1852—Kolliker's treatise on histology published.

Pirogoff employs frozen sections in his Anatome topographica.

International Congress of Hygiene at Brussels.

Obstetrical Society (London) founded.

Farr reports on cholera epidemic of 1848-9.
Griesinger shows ankylostoma to be the cause of Egyptian chlorosis.
Babo demonstrates the rapid separation of blood-corpuscles from the serum by centrifugation.
Horace Green excises growths from larynx per os.
Magnus Huss defines alcoholism.
Langenbeck introduces subcutaneous osteotomy.
Remak shows that growth of tissues is due to cell-division.
Société médico-psychologique (Paris) founded.
Hospital for Sick Children at Great Ormond Street, London.
School of Military Medicine at Val-de-Grâce (Paris).
School for Javanese physicians at Weltvreden.
Mercy Hospital (Chicago) chartered (June 21).
Tufts College (Medford, Massachusetts) founded (Medical School, 1893).
St. Mary's Hospital (London) founded.
Veterinary School at Léon (Spain).
1852-3—B. A. Morel describes démence précoce.
1852-70—Second Empire in France.
1853—University of Melbourne founded.
Washington University (St. Louis) founded.
Marion Sims publishes treatise on vesico-vaginal fistula.
Stanislao Cannizarro obtains alcohols from aldehydes.
Budge establishes functional independence of spinal cord (localization of centers).
Farr publishes second English life-table.
Cohn establishes vegetable nature of bacteria.
Virchow discovers neuroglia.
Gilman Kimball excises uterus for fibromyoma.
1853-56—Crimean War: Florence Nightingale.
1854—Hittorf investigates electrolysis (ions).
Sir. W. R. Hamilton introduces quaternions.
California Academy of Sciences (San Francisco) founded.
Dysentery pandemic in Europe.
Graefe elucidates glaucoma and its treatment by iridectomy.
University of Marseilles, Clermont-Ferrand and Nancy founded.
Ehrenberg publishes treatise on micro-organisms.
Boston Medical Library founded.
Claude Bernard discovers function of vasodilator nerves.
Graham investigates osmosis.
Crédé introduces method of removing placenta by external manipulation.
Middeldorpf introduces galvanocautery in major surgery.
Chlorine treatment of London sewage authorized (English Royal Commission).
Beauperthuy states theory of mosquito transmission of yellow fever.
Spanish law regulating public health.
Aerztliches Intelligenz-Blatt (Münchner medicinische Wochenschrift, 1886) founded.
Graefe founds Archiv für Opthalmologie (Berlin).
Dr. N. S. Davis began regular publication of reports on health of Chicago.
Dr. Daniel Brainard advocates infiltration of iodine solution in treatment of poisoned wounds.
Robert Arthur, D.D.S., demonstrated adhesive properties of gold for dental fillings.
1854-6—Belgrand constructs sewers of Paris.
1854-60—Cerebrospinal meningitis epidemic in Sweden and Germany.
1855—Manuel Garcia introduces laryngoscope.
Addison publishes memoir on diseases of the suprarenal capsules.
Farr publishes classification of diseases.
Burmeister classifies insects.
Remak employs galvanic current in diagnosis and therapy.
Marion Sims founds Hospital for Women's Diseases (New York City).
Royal Academy of Sciences (Amsterdam) founded.
Water filtration compulsory in London.
Bessemer steel process and Bunsen burner invented.
Paris Exposition.
Discovery of Trichinae.
First use of quarantine placards in Chicago.
A. S. Cheesbrough, engineer, advised flushing Chicago river with water from Lake Michigan.
1855-61—Sidney Herbert's reforms in military sanitation.
1855-76—John Simon serves as Central Medical Officer (London).
1856—Sir W. H. Perkin (1838-1907) obtains aniline dyes (coal-tar products).
Panum investigates chemical products of putrefaction.
Brücke investigates speech (phonetics).
Caspar's treatise on medical jurisprudence published.
1856-7—Berlin water supply filtered.
1856-9—Pandemic diphtheria.
1856-60—General spread of diphtheria in Europe and America.
Virchow becomes professor of pathology in Berlin.
Jobst and Hesse discover physostigmin.
1857—Graefe introduces operation for strabismus.
E. B. Elliot prepares first Massachusetts Life-table.
Typhoid fever traced to milk (Penryth, England).
Petters discovers acetone in urine and expiration of diabetics.
Bouchut performs intubation of the larynx.
Universities of Chicago, Calcutta and Madras founded.
Lucien Corvisart shows that pancreatic juice can digest proteins.
Pathological Society of Philadelphia founded.
National Sanitary Convention in Philadelphia.
1858—Virchow's Cellularpathologie published.
Claude Bernard discovers vaso-constrictor and vaso-dilator nerves.
Marcet discovers lipolytic power of gastric juice.
Niemann isolates cocaine in Wöhler's laboratory.
Pettenkofer proves that solid walls are permeable to air.
Kekulé shows quadrivalence of carbon atom.
English Public Health and Local Government Acts (transfer of functions of General Board of Health to Privy Council and Home Secretary).
Medical Act (England) ascertaining status of qualified and registered practitioners.
Veterinary High-School at Copenhagen.
National Sanitary Conference at Baltimore (Maryland).
Royal Dental Hospital (London).
Czermak invented the Laryngoscope.
1858-67—Pullman cars introduced.
1859—Darwin's Origin of Species published.
Wagner completes score of Tristan (produced 1860).
Kirchoff and Bunsen discover spectrum analysis.
Graefe describes retinal embolism.
Landry describes acute ascending paralysis.
Pflüger publishes memoir on electrotonus.
Petroleum used in oil-lamps (Pennsylvania).
Florence Nightingale publishes Notes on Nursing.
Farr publishes Healthy District Life Table.
Sir J. Bazalgette plans canalization (sewage disposal) of London (executed 1859-75).
Hermann Brehmer opens hospital for phthisis at Görbersdorf.
Kolbe synthetizes salicylic acid.
Botanic Gardens at Singapore.
National Sanitary Convention at New York (City).
Laboratory of Marine Zoölogy and Physiology at Concarneau (Finistère).
Dr. James McF. Gaston successfully performs intestinal anastomosis by united portions of a severed gut protruding through a wound in the abdominal wall.
Chicago Medical College started—the first medical school in America requiring graded course of instruction.
1860—Pasteur demonstrates presence of bacteria in air.
Lemaire points out antiseptic properties of carbolic acid.
Czermak introduces rhinoscopy.
Donders introduces cylindrical and prismatic spectacles for astigmatism.
Zenker describes trichinosis.
Couchut publishes Du nervosisme.
G. J. Symonds publishes British Rainfall (Vol. I).
Berliner medicinische Gesellschaft founder.
Institute of Veterinary Medicine at Turin.
Adulteration of Food Act (England).
England and Massachusetts enact first laws against adulteration of milk.
Parkes becomes professor of military hygiene at Army Medical School (Chatham).
National Sanitary Convention at Baltimore.

Duchenne describes bulbar paralysis.
Schultze introduces method of resuscitating asphyxiated infants.
University of California founded.
Sir William Thompson discovers the electrometer.
1860-92—Canalization of Munich for sewage disposal (Pettenkofer).
1861—Ernest Brand introduces hydrotherapy in typhoid fever.
Pasteur discovers anaerobic bacteria.
Pettenkofer and Voit construct calorimeter (basal metabolism).
E. B. Wollcott (Milwaukee) first excisesrenal tumor.
Thure Brandt introduces massage in gynecology.
Ménière describes labyrinthine vertigo.
Max Schultze defines protoplasm and cell.
Broca discovers speech center in the brain.
Buckminster Brown establishes Samaritan Hospital (New York).
Massachusetts Institute of Technology (Boston) founded.
Society of Psychiatrists (St. Petersburg) organized.
Semmelweiss (Vienna) shows cleanliness as preventive of puerperal fever.
1861-65—Civil War in the United States.
National Sanitary Commission (United States).
1862—University of Urbino opened (1671).
Raynaid describes symmetrical gangrene.
Phoebus summarized knowledge of "early summer catarrh" (hay fever).
Donders publishes studies on astigmatism and presbiopia.
Spencer Wells operates for tubercular peritonitis.
Krassovsky performs first ovariotomy in Russia.
Victor von Bruns performs first laryngeal operation with laryngoscope.
Florence Nightingale establishes training school for nurses at St. Thomas' Hospital.
Winternitz and Oppolzer found first hydropathic establishment at Vienna.
University of Warsaw reopened as a High School (closed 1869).
Entomological Society (Iris) at Dresden.
1863—Helmholtz's Tonempfindungen published.
Deiters discovers glia cells (astrocytes).
Virchow investigates tumors.
Davaine produces anthrax experimentally.
William Banting publishes Letter on Corpulence.
Kahlbaum classified insanity and defines paraphrenia as age-linked insanity (neophrenia, hebephrenia, presbyophrenia).
Setchenoff's work on cerebral reflexes published.
Pasteur investigates silkworm disease.
Army Medical School (England) transferred to Royal Victoria Hospital (Netley).
Old Cook County Hospital (Chicago) started.
American Veterinary Medical Association (Detroit) founded.
Biological station at Areachon (Gironde).
National Academy of Sciences (Washington) founded.
University of Belgrade (Jugoslavia) founded.
Systematic nursing first established (in the United States).
1863-5—Pandemic cholera.
1863-82—Ismail Pasha (first Khedive of Egypt).
1864—Donders publishes treatise on anomalies of accommodation and refraction.
Traube investigates pathology of fever.
Hlasiwetz and Barth obtain resorcin.
Conheim elucidates mechanism of inflammation (diapedesis of eleucocytes).
Parkes' Manual of Practical Hygiene published.
Geneva Convention.
LeVerrier founds Association française pour l'avancement des sciences.
Weit describes causalgia.
Gray Herbarium (Harvard University) founded (Cambridge, Massachusetts).
German Psychiatric Society (Berlin).
Chicago Medical College incorporated.
St. Louis College of Pharmacy founded.
University of Bucharest (Roumania) founded.
Berliner klinische Wochenschrift founded.
Max Schultze founds Archiv für mikroskopische Anatomie (Bonn).
Use of milk from diseased cows prohibited in Boston.
St. Luke's Hospital (Chicago) opened.
Council of Hygiene (New York City).
K. F. W. Ludwig and L. Thiry discover the important vasomotor center which regulates the circulatory system.
1865—Gregor Mendel publishes *memoir on plant hybridity.*
Zander introduces mechanotherapy.
University of Odessa founded.
Cornell University founded at Ithaca.
St. Louis Public Library founded.
Yellow fever and Russian cattle-plague in England.
Report of Citizen's Association on sanitary conditions of New York City.
Billings founds American Medical Library (Surgeon General's Office, Washington).
First Roumanian Medical Society at Galatz.
Rivers Pollution Commission (Great Britain).
Chicago Hospital for Women founded.
Herman Sprengel devises the mercury air pump.
1865-6—Asiatic cholera in Europe.
Villemin demonstrates transmissibility of tuberculoses by inoculation (Klencke, 1843).
1866—Seven Weeks' (Austro-Prussian) War.
Voit establishes first hygienic laboratory in Munich.
Ludwig and Cyon investigate the vasomotor nerve.
Marion Sims publishes Clinical Notes on Uterine Surgery.
Graefe describes sympathetic ophthalmia.
Liébault publishes treatise on hypnotism.
A. J. Ångström introduces Ångström units.
P. H. Watson (Edinburg) performs first excision of larynx.
Academy of National Sciences at Agram.
Society of Physicians at Cracow.
Pukinje founds Society of Czech Physicians at Prague.
Metropolitan Health Board (New York City) established (April 21).
Local anesthesia by means of ether spray.
Alexian Brothers Hospital (Chicago) established.
1867—Lister introduces antiseptic surgery.
Helmholtz publishes treatise on physiological optics.
Kussmaul introduces intubation of the stomach.
Moritz Traube devises semi-permeable membranes.
English Sanitary Act.
Charles Liernur introduces pneumatic system of disposal of sewage.
Bobbs performs cholecystotomy.
Percy Frankland introduces combustion process for measuring organic matter in water.
A. W. von Hoffman discovers formeldehyde.
First International Medical Congress at Paris.
Siemens brothers introduce dynamo.
Dominion of Canada established (July 1).
Opening of Suez Canal and of Pacific Railway.
First tunnels for Chicago water-supply completed.
Clinical Society (London) founded.
Canadian Medical Association organized.
W. H. Draper lectures on dermatology (College of Physicians, New York).
Metropolitan Poor Law Act (England).
Chicago Board of Health organized.
Tenement House Law (New York City).
K. F. W. Ludwig and Albert von Bezold discover the accelatory nerves of the heart.
Dr. R. A. Kinloch performs first laparotomy for resecting the intestine and restoring its continuity.
1868—University of Tokyo (Tokyo Teikoku Daigaku) founded (Library, 1872).
Haeckel's Naturliche Shopfungsgeschichte published.
Darwin publishes treatise on Variation in Animals and Plants.
Heidenhain investigates salivary secretion.
Meyer (Copenhagen) describes adenoid vegetations.
Meyer operates on adenoids.
Pelechin introduces antisepsis in Russia.
Kahlbaum defines katatonia.
Boettcher discovers spermine.
Herling and Breuer discover self-regulation of respiration (role of vagus).
Schwender investigates symbiosis in lichens.
James Lenox founds Presbyterian Hospital (New York).

American Otological Society (Boston) founded.
East London Nursing Society founded.
Jewish Hospital (Chicago) founded.
Society of Czechoslovakian Physicians (Prague).
Société de médecine légale (Paris) founded.
English Pharmacy Act against unlicensed sale of poisons.
Pflüger founds Archiv für die gesamte physiologie (Bonn).
1869—University of Warsaw founded (moved to Rostov, 1915).
Esmarch introduces first-aid bandage.
Brown-Sequard introduces doctrine of internal secretions.
Wunderlich publishes treatise on clinical thermometry.
Virchow urges medical inspection of schools.
Goltz investigates nerve centers in the frog.
Gustav Simon excises kidney.
Oscar Liebreich demonstrates hypnotic effect of chloral hydrate.
Bevan Lewis investigates localization of function in the brain (histological).
J. P. Kirkwood publishes report on filtration of river waters.
Mendeléjeff and Lothar Meyer discover periodicity of elements.
American Journal of Obstetrics founded.
Torture abolished in Canton of Zug (Switzerland).
Faculté de Médecine (Nancy) founded.
Ceylon Medical College (Colombo) founded.
American Museum of Natural History (New York City) founded.
Chicago Medical College becomes Medical Department of Northwestern University.
American Editors Association (New York) founded.
First inspection of milk in Chicago.
G. V. Black, D.D.S., demonstrates physical properties of gold as applies to dental fillings.
Hospital at Osaka (Japan).
Massachusetts State Board of Health created.
Ontario (Canada) Act of Registration of Vital Statistics.
Tenement House Law (New York State).
1869-70—Pius IX restores Marcian Aqueduct (Rome) as Aquea Pia.
1869-71—Royal Sanitary Commission (Great Britain).
1869-1919—Mercy Hospital (Chicago) enlarged.
1870—Fritsch and Hitzig investigate localization of function of brain.
Thomas performs vaginal ovariotomy.
Saemisch describes serpiginous ulcer of the cornea.
Linoleum invented.
Beginnings of general central-heating in Germany.
Daremberg appointed to chair of medical history in Paris Medical Faculty.
Metropolitan Asylum Board (England).
Board of Health, District of Columbia, organized.
Women's Medical College (Chicago) organized (August 2), closed (1902).
Universities of Syracuse (New York) and Cincinnati (Ohio) founded.
Wisconsin Academy of Sciences founded.
Metropolitan Fever Hospitals (London) established.
Ural Scientific Society at Sverdlovsk.
Anthropological Society of Vienna founded.
Volkmann founds Sammlung Klinischer Vorträge (Leipzig).
First milk ordinance in Chicago.
1870-71—Franco-Prussian War (test of vaccination).
1870-74—Anton Dohrn establishes marine zoological laboratory at Naples.
1870-88—Medical and Surgical History of the War of the Rebellion published.
1871—Establishment of German Empire and French Republic.
Darwin's Descent of Man published.
Weigert stains bacteria with carmine.
Hammarsten discovers role of fibrinogen, in coagulation of blood.
Hoppe-Seyler discovers nuclein in the blood-corpuscles.
English Local Government Board created.
Biological Station (University of Odessa) at Sebastopol (Crimea).
Boards of Health in California and Virginia.
Royal Anthropological Institute (London) founded.
Munich Society of Anthropology founded.
Italian Society of Anthropology (Florence) founded.
New York Orthopedic Hospital founded.
American Public Health Association established.
G. V. Black, D.D.S., brought out first dental engine.
1871-2—First American filter for water-supply at Poughkeepsie, New York.
1871-80—General widespread adulteration of food in the United States.
1871-1919—Local Government Board (England).
1872—University of Strassburg reopened.
University of Klausenburg (Kolozsvar) founded.
University of Adelaide (Australia) founded.
Billroth resects the esophagus.
H. C. Wood investigates heat-stroke.
Abbe introduces oil immersion lenses.
Merck introduces pyoctanin (methyl violet).
Battey performs normal overiotomy.
Noeggérath describes effects of latent gonorrhea in women.
Typhoid fever epidemic from polluted water in Lausen (Switzerland).
Metropolitan Water Act (piping of water in London).
Milk station sestablished by Diet Kitchen Association (New York).
American Public Health Association hold first meeting (September 12).
Presbyterian Hospital (New York) opened.
Lacaze-Duthiers founds Biological Station at Roscoff.
Tokyo Library (Ugeno Park).
Infant Life Protection Act passed in England.
German Surgical Association (Berlin) founded.
Chicago Public Library founded.
Sociedad Científica Argentina at Buenos Aires.
Society of Chersonese Physicians at Cherson (Ukraine).
Introduction of Crédé's silvernitrate installation for infantile conjunctivitis.
Society of Physicians at Ekaterinoslav (Ukraine).
Medical Society at Stuttgart.
1873—Academy of Geneva (1559) becomes University.
Obermeier discovers spirillum of relapsing fever.
Nussbaum introduces nerve-stretching.
Esmarch introduces hemostatic bandage.
Gull describes myxedema.
Billroth excises the larynx.
Schwartze and Eysell devise mastoid operation.
Cuignet introduces retinoscopy.
Cerk Maxwell publishes treatise on electricity and magnetism.
Lippman's electrometer.
Cantani describes lathyrism.
Laryngological Society of New York organized.
Revaccination compulsory in Germany.
German Public Health Association (Berlin) founded.
League of German Medical Societies (Berlin).
Boards of Health in 134 American cities.
Institute of Municipal and County Engineers (Great Britain).
Ingalls removes renal calculus successfully.
Golei discovers staining method for studying nervous system.
1873-83—James Hobrecht constructs canalization system for sewage of Berlin.
1874—Cholera conference in Vienna.
International postal service.
Fiedler stresses danger of morphine habit.
Loi Roussel enacted for the protection of infants (France).
Ehrlich introduces dried blood smears and improves stain methods.
Kahlbaum publishes monograph on katatonia.
Miescher investigates nucleoproteids.
Willy Kühne discovers trypsin.
Sappey investigates the lymphatic system.
N. Pringsheim investigates chlorophyll.
Fryer builds furnace incinerator for refuse at Nottingham (England).
Imperial Hygienic Laboratory at Tokyo.
Veterinary Institute at Kazan.
Illinois law regulating food supply.
Society of Croatian Physicians at Agram.
Alfieri Institute of Social Sciences at Florence.
Sir Joshua Mason founds University of Birmingham as Mason College.
Salicylic acid isolated by Kolbe.
Polcarpine first recommended as a remedial agent.

Hansen discovers the bacillus of leprosy.
T. A. Emmett repairs lacerated cervix.
First application of galvanism to uterine myomata.
1875—University of Lemberg and Czernowitz founded.
École d'Anthropologie (Paris) founded.
Faculté de Médecine et Pharmacie (Lille) founded.
Landois discovers hemolysis from transfusion of alien blood.
Sir Thomas Barlow describes infantile scurvy.
Hardy and Gerard introduce pilocarpin.
Kühne and Nencki discover indol.
Lösch observes parasitic amebae in dysentery.
Weir Mitchell introduces rest cure.
Corfield establishes first public health laboratory in England.
Imperial Hygienic Laboratory (Osaka).
Chesebrough obtains vaseline.
Meat inspection compulsory in Germany.
English Public Health Act.
Paul Börner founds Deutsche medicinische Wochenschrift (Berlin).
English Sale of Food and Drugs Act.
Boston Medical Library founded (opened October 18).
1875-6—Cold-storage meat sent overseas.
1875-7—Pandemic cholera.
1875-82—Artisan's Dwellings Improvement Acts (England).
1875-1902—Gegenbaur edits Morphologisches Jahrbuch.
1876—Imperial Board of Health founded at Berlin (April 30).
Royal Sanitary Institute founded (London).
Johns Hopkins University founded.
Athenaeum ilustre (1632) becomes University of Amsterdam.
University of Bristol founded.
Royal Academy of Medicine founded at Rome.
Physiological Society of London founded.
Centennial Exposition, Philadelphia (July 4).
International Hygienic Congress at Brussels.
Sayre introduces gypsum corset for spinal deformities.
Kolbe isolates salicylic acid.
Eulenburg publishes handbook of industrial hygiene.
Lombroso publishes treatise on criminal man.
Fechner investigates synaesthesia.
Paquelin cautery introduced.
Porro introduces Caesarean section with excision of adnexa.
Koch obtains pure cultures of anthrax bacilli on artificial media.
Pictet invents artificial manufacture of ice.
Max Nitze introduces cystoscope.
Société française d'hygiène (Paris) founded.
Library, Medico-Chirurgical Faculty of Maryland, opened.
Establishment of Department of Health (Chicago).
Discovery of the resistant anthrax spores by Koch.
First application to treatment of uterine myomata of Batty's operation of oblation of appendages by Trenholme.
Museo Kircheriano (Rome) becomes Pigorini Museum of Prehistory and Ethnography.
Public baths and portable bathtubs (England).
Jablochkoff keolin arc-lamp invented.
Peter Dettweiler treats consumptives at Falkenstein (rest cure in open air).
American Dermatological Association (Boston) founded.
Bell telephone introduced.
American Chemical Society (Washington, D. C.) founded.
American Library Association (Chicago) founded.
1876-7—Raoult-Bunte burette for gas analysis.
1876-8—Friedrich Siemens establishes crematory (Gotha).
1876-1909—New Cook County Hospital (Chicago) begun and completed.
1877—T. J. Burrill (Illinois) discovers organism of pear-blight.
Pasteur discovers bacillus of malignant edema
Esmarch introduces aseptic bandage.
Ernst von Bergmann introduces corrosive sublimate antisepsis.
Bezold describes mastoiditis.
Paget decribes osteitis deformans.
Pictet and Cailletet liquefy gasses.
Stricker treats articular rheumatism with salicylic acid.
Winternitz publishes treatise on hydrotherapy.
Faculté de Médecine (Lyons) founded.
Illinois State Board of Health requires license for practice of medicine
1877-78—Russo-Turkish War.
Bollinger and Israel describe actinomycosis.
1877-1907—Progressive factory legislation in Massachusetts.
1878—Koch discovers causes of traumatic infection.
Von Basch measures blood-pressure with sphygmomanometer.
W. A. Freund excises cancerous uterus.
Marine Hospital Service (United States) takes over national quarrantine.
Downes and Blunt demonstrate bactericidal effects of light (Royal Society.)
Nägeli discovers that bacteria are not given off by moist surfaces.
Massachusetts law authorizing inspection of plumbing.
Foster founds Journal of Physiology (London)
Edison invents platinum wire (incandescent) electric lamp.
International Congress of Hygiene at Paris.
Chicago Pathological Society founded.
Billroth excises pylorus successfully.
Mathyson introduces plaster of Paris bandages.
1878-9—Welch, Prudden, Sternberg and Salmon introduce bacteriology in United States.
1879—Neisser discovers gonococcus.
Hansen and Neisser discover lapra bacillus.
Max Nitze introduces cystoscopy.
Manson discovers transmission of filariasis by mosquitoes.
Parkes Museum of Hygiene opened (University Hospital, London).
Billings and Fletcher start Index Medicus.
Bechem and Post employ low-pressure steam in central heating.
Parliament sanctions Thirlmere Aqueduct (96 miles) for water-supply of Manchester.
Factory and Workshops Act (England).
Hygienic Institute (University of Munich) opened by Pettenkofer (authorized 1872).
Anthropological Society of Washington (D.C.) founded.
German food law passed (May 14).
Pateur announces the infective agent in puerperal fever.
Lester Curtis (Chicago) introduces microscope in medical education in America
Sir William Crooke announces that matter is radiant.
1879-82—National Board of Health (United States).
1880—Pasteur discovers streptococcus, staphylococcus and pneumococcocus (Sternberg).
Pasteur immunizes against chicken-cholera by attenuated cultures.
Eberth isolates typhoid bacillus.
Miquel devises exact methods for enumerating bacteria in water.
Cold-storage meat successfully transported to Australia.
Pasteur and Sternberg demonstrate carriage of pneumonia bacillus in healthy mouth.
Sandstrom describes parathyroid gland.
Mosttig Moorhof introduces iodine dressings in surgery.
Balfour's Embryology published.
Evans discovers trypanosome of Surra (T. Evansi).
Merke (Berlin) investigates effect of steam upon pathogenic microorganisms.
Roeckner and Rothe devise method of purifying sewage by upward filtration.
Von Jaksch defines physiological and pathological acetonuria.
Billings publishes Index Catalogue (Vol. I).
American Surgical Association founded.
University of Tomsk (West Siberia) founded.
Cambridge Medical Society (England).
Government Calf Lymph Establishment at London.
F. Rizzoli founds Orthopedic Institute at Rome.
J. S. Billings constructs life-table from data of United States Census.
L. W. Meach compiles American Experience (Life) Table from data of 30 insurance companies.
Opthalmological Society (United Kingdom) founded.
Parliament sanctions Vyrnwy Aqueduct (68 miles) for water-supply of Liverpool.
London Association of Medical Women.
W. D. Mille, D.D.S., establishes the bacteriological origin of dental caries.
1880-1—Laveran discovers parasite of malarial fever.

1880-85—Bronx River Conduit (New York City) for water-supply constructed.
1880-89—Hawksley and Deacon construct Vyrnwy Water-Works (Liverpool supply).
1881—Billroth resects the pylorus for cancer, with success.
Ogston discovers staphylococci in abscesses.
Pasteur produces vaccine against anthrax.
Food and Drug Law (New York State).
Veterinary School at Lemberg (Galacia).
Chicago Pathological Society (organized April 10, 1878).
Vincenz Czerny introduces vaginal excision of uterine tumors.
Hahn performs nephropexy.
Wölfler introduces gastro-enterostomy.
Medin discovers epidemic nature of poliomyelitis.
Wundt investigates reaction-time.
Soxhlet estimates specific gravity of milk with lactodensimeter.
Kock introduces gelatine-media (solid plate cultures) and steam sterilization
Grimaux obtains codeine from morphine.
Government Animal Vaccination Establishment in Lamb's Conduit Street (London).
Russial Surgical (Pirogoff) Society (St. Petersburg) organized.
Société d'odontologie (Paris) founded.
New York Polyclinic founded.
College of Physicians and Surgeons (Chicago) incorporated (October 4; opened, 1882).
Whooping-cough a leading cause of infant mortality in English vital statistics.
Carlos Finlay surmises transmission of yellow fever by Stegomyia fasciata (August 14).
Weiss (in Billroth's Clinic) described post-operative tintany.
Tyndall publishes Essays on the Floating Matter of the Air.
University College of Liverpool founded.
Valuable modification of the intraperitoneal method of treatment of the stump.
Dr. Francis L. Parker the first surgeon in the United States to obtain successful reunion of a large nerve by suturing.
1882—Koch discovers tubercle bacillus.
Gaskell investigates functions of vagus nerve.
Löffler and Schutz isolate bacillus of glanders in pure culture.
Bizzozero discovers blood-platelets.
Horbaczewski synthetizes uric acid from glycocoll and urea.
Walther Flemming investigates cell division.
Bertillon introduces personal identification by anthropometry (Bertillonage).
Max Sänger improves Caesarean section.
Liebreich introduces lanolin.
Langenbuch excises the gall-bladder.
Winiwarter performs cholecystenterostomy.
First code for inspection of plumbing (Lawrence, Massachusetts).
Holly introduces central (steam) heating at Lockport, New York.
Lépine and Blanc describe pleuro-peritoneal tuberculosis.
Grawitz describes renal hypernephroma.
Public Health Act (Canada) passed.
Provincial Board of Health (Ontario) organized.
Royal Academy of Medicine in Ireland (Dublin) founded.
New York Post-graduate Medical School and Hospital founded.
Society for Psychic Research (London) founded.
Prophylactic treatment of rabies by injection of virus (August 19).
Koch discovers comma bacillus of cholera.
Dr. R. A. Kinloch the first surgeon to suture perforation of the intestines for gun shot wounds.
Michael Reese Hospital (Chicago) opened.
Royal Society of Canada (Ottawa) founded.
1882-1904—Canizzaro and pupils investigate santonin group.
1882-1906—Emil Fischer investigates purin bodies.
1882-1913—Saccardo publishes Sylloge Fungorum (22 vols.).
1883—Edwin Klebs discovers diphtheria bacillus.
Kjeldahl introduces method of estimating nitrogen.
Golgi introduces silver stain for nerve cells.
Billroth and Senn anastomose ileum and colon.
Pasteur vaccinates against anthrax.
Metchnikoff states phagocytic theory of immunity.
Unna introduces ichthyol.
Koch discovers bacilli of cholera and infectious conjunctivitis.
Lawson Tait operates for extra-uterine pregnancy.
Adolph von Baeyer obtains formula of indigo.
Fehleisen obtains pure cultures of streptococci in erysipelas.
J. F. F. Hermans attributes faulty ventilation to humidity and overheating.
Kuhne and Chittenden demonstrate role of trypsin in digestion.
Conners (Cincinnati) performs gastrectomy.
A. F. A. King propounds theory of malarial transmission by mosquitoes.
Parke's Museum (London) rebuilt.
Pennsylvania Anatomical Law passed.
Italian Society of Surgery (Rome) founded.
Hemostatic effect of the fluid extract of hydrastis canadensis.
Antidiphtheric serum introduced by Behring.
Dr. Francis L. Parker performed successful transplantation of conjunctiva of rabbit to the human eye.
Faculty of Medicine at Beirut (Syria).
1883-5—Gustav Neuber (Kiel) introduces aseptic hospital.
1884—Nicolaier discovers tetanus bacillus.
Crede introduces silver nitrate instillations for infantile conjunctivitis.
Lustgarten isolates smegma bacillus.
Senn advances pancreatic surgery.
Ludwig Knorr discovers antipyrine.
Veit investigates tubal pregnancy.
Riedel introduces salipyrin.
Baumann discovers sulphonal (Kast, 1888).
Billroth excises pancreas for cancer.
Mikulicz operates for perforated typhoidal ulcer.
Gaffky obtains pure culture of typhoid bacillus (Eberth, 1880).
Löeffler obtains pure culture of diphtheria bacillus (Klebs, 1883).
Emmerich isolates colon bacillus (Escherich, 1886).
Hueppe investigates lactic acid bacilli in sour milk.
Chamberland invents porcelain bacterial filter.
Wilhelm Ebstein produces urinary calculi experimentally.
Bang and Stein cultivate bacilli of bovine tuberculosis.
Bernheim publishes treatise on suggestive-therapy.
Mergenthaler introduces linotyping.
Bauer (St. Louis) operates for epilepsy, removing portion of skull.
Metchnikoff discovers the protective power of phagocytes.
Woelfer introduces gastroenterostomy.
Archaeologic Museum at Epidaurus.
International Health Exhibit (London).
German workmen's compensation law for industrial accidents.
United States Bureau of Labor establishes June 27; in effect July 1, 1885.
Carl Koller employs cocaine in eye surgery.
1884-8—Hamburg-Eppendorf Hospital constructed.
1884-1919—Emil Fischer investigates carbohydrates and ferments.
1885—O'Dwyer improves intubation of the larynx.
Golgi discovers glia cells.
Yamanashi isolates ephedrine (Nagai, 1887).
Hermann Cohn introduces examination of school-children for visual acuity.
Bunge introduces hematogen.
Oscar Loewi discovers bactericidal property of formaldehyde (formalin).
Kossel isolates adenin.
Fraser introduces strophanthus.
H. Kümmel performs choledochostomy.
Bumm obtains pure cultures of gonococcus.
Hermann Rietschel appointed professor of heating (Technical High School, Charlottenburg).
Weismann publishes memoir on continuity of the germ plasm.
Ewald and Boas introduce test-breakfasts.
Halsted introduces conduction anesthesia.
Reilly (United States Army) constructs first incinerator.
Weigert introduces hematocylin staining of nerve-fibres.
Princess Helena Pavlovna founds Clinical Institute (St. Petersburg).
Medical Society at Omsk (Siberia).
Medical Association of Montana (Billings) founded.
L. Leonard Corning discovers spinal anesthesia and local medication of the cord.

Institute of Military Hygiene at Madrid.
Trudeau Sanitarium at Saranac Lake, New York.
1885-6—Cholera survey in England.
1885-7—Auer von Welsbach patents and improves incandescent lamp mantle (Welsbach burner).
1885-93—New Croton Aqueduct (New York City water-supply) constructed (31 miles).
1886—Nuttall notes bactericidal power of blood-serum.
Von Bergmann introduces steam sterilization in surgery.
Filatow describes glandular fever and fourth disease.
Hirschsprung describes megacolon.
Escherich investigates bacteria of intestines in infants.
Fitz describes pathology of appendicitis.
Marie connects acromegaly with the pituitary body.
Weir Mitchell and Reichert investigate serpent venom.
Marcel von Nencki introduces salol.
Soxhlet introduces sterilized milk for nutrition of infants.
Kopps, Cahn, and Hepp introduce acetanilide as antifebrin (Gerhardt, 1843).
Lehman investigates effect of industrial poisons.
Association of American Physicians (Boston) organized.
R. W. Felkin lectures on tropical medicine at Edinburg.
New York Cancer Hospital founded.
Chicago Polyclinic opened (July 26).
D. J. Price and associates improves technique of extraperitoneal method of treating the stump by which introligamentous tumors and those deep in the pelvis can be removed.
Sulphonal prepared by Baumann.
Strophanthus c recommended as a substitute for digitalis by Fraser.
Conseil de Santé (Quebec) founded.
Royal Institute of Public Health (London) founded.
Liverpool Biological Society founded.
Bruce isolates the bacteria of Brucella.
1887—Clark University founded (Worchester, Massachusetts).
Bruce discovers coccus of Malta fever.
Weichselbaum discovers meningococcus.
Salkowski discovers phytosterin (nucleus of vegetable fats).
Wagner von Jauregg proposes treatment of infection by counter-infection.
Fell introduces intratracheal anesthesia.
Harvey Reed sutures pericardium.
Sir John Simon publishes Public Health Reports.
D'Arsonval introduces high-frequency currents.
Howard Kelly performs hysterorrhaphy.
Gowers and Horsley operate on the spinal cord.
Gram introduces diuretin.
Sewall immunizes pigeons against rattlesnake venom.
Kast and Hinsberg introduce phenacetin.
Sloane Maternity Hospital (New York) opened.
Poor law medical officers abolished (England).
American Orthopedic Association founded.
Institute of Legal Medicine at Tokyo.
Psychological Association (Berlin) founded.
Newberry Library (Chicago) founded.
Amanda Dixon Jones performs vaginal hysterectomy of cancerous uterus.
Moses Gunn died.
1887-9—Hertz investigates electric waves.
1888—Medical Department, University of Tomsk (1880) opened.
Institut Pasteur founded.
Roux and Yersin isolate toxin of diphtheria.
Chantemesse and Widal introduce vaccines against typhoid fever.
Weil describes infectious jaundice (Botkin, 1889).
Victor Babes discovers piroplasm of carceag (Babesia).
Ducrey isolates bacillus of chancroid.
Nencki and Sieber isolate hematoporphyrin.
Zuntz and Geppert construct respiration calorimeter.
Celli demonstrates fly transmission of typhoid fever.
Gee describes coeliac disease (intestinal infantalism, Herter, 1918).
Parkes Museum merged into Sanitary Institute (Great Britain).
Baumann and Kast introduce trional.
Local Government Act (England).
Bacteriological (public health) laboratory at Providence, Rhode Island.
Experiment Station at Lawrence, Massachusetts.
Public Health (Bacteriological) Laboratory at Rome (Italy).
Alfieiri Institute of Social Sciences at Florence (1874).
Marine Biological Laboratory at Woods Hole (Massachusetts).
Société française d'Ophthalmologie (Paris) founded.
Museo pedagogico at Montevideo (Uruguay).
École de service de santé militaire (Lyons), founded.
American Association of Anatomists (Baltimore) organized.
American Association of Railway Surgeons (Chicago) founded.
Australasian Association for the Advancement of Science (Sydney) organized.
McEwen of Glasgow performed laminectomy for spinal paralysis.
Methods for making the stump intraabdominal but extraperitoneal, Polk; 1890 Kelly; 1890 Byford; 1892 Baer.
Total abdominal extirpation of myomatous uterus by use of clamp, by Lewis.
Prehistoric Museum at Weimar.
1888-92—Dercum describes painful obesity.
1888-1906—Carlsberg Glyptothek (Copenhagen) constructed.
1889—Johns Hopkins Hospital (Baltimore) and Hamburg-Eppendorf Hospital opened.
University of Fribourg (Switzerland) opened. (November 4).
Hofmeister investigates proteins (crystallized egg-albumen).
Buchner discovers alexins.
Von Mering and Minkowski produce experimental pancreatic diabetes.
Von Behring discovers antitoxins.
Max Einhorn illuminates the stomach (gastrodiaphamy).
Von Jaksch describes pseudoleukemic anemia.
Kitosato obtains pure cultures of tetanus bacillus.
Pfeiffer describes glandular fever and discovers influenza bacillus.
Pasteur, Chamberland, and Roux employ attentuated cultures in preventive innoculation.
Salkowski investigates autodigestion of organs.
Henry Head investigates mechanism of respiration.
Conn (United States) investigates bacteriology of milk.
Infant milk depots at Hamburg and New York (Henry Koplik).
Roux and Yersin point out danger of diphtheria convalescents as carriers.
Oscar Lassat introduces public baths (Berlin).
University of Madras qualifies public health officers.
Kocher performs hepaticostomy.
Vaughan and Novy teach bacteriology in Michigan.
Von Bergmann publishes treatise on brain surgery.
Queen Victoria's Jubilee Institute for Nurses chartered.
Society of Scientists and Physicians at Tomsk (Siberia).
Missouri Botanical Garden at St. Louis.
Laboratory of Vegetable Biology at Fontainbleau.
Brown-Sequard laid the cornerstone of endocrinology.
Gueniot suggests the section of skull for idiocy.
Operation performed by Lannelongue in Paris, Keen of Philadelphia, and Wyeth of New York.
Sanitary District of Chicago established.
Polk does total abdominal extirpation, fastening stump of vagina to abdominal incision, for prolapse.
First separate ligation of uterine arteries in their continuity and total exterpitation of this method, Stimson.
Introduction of cystoscope of Nitze.
1889-90—Pandemic influenza.
1889-91—Brown-Sequard establishes organotherapy.
1889-93—Denver Aqueduct (16½ miles, from Platte River) constructed.
1890—University of Lausanne founded (Academie, 1536).
Imperial Institute of Experimental Medicne (St. Petersburg) founded.
Koch introduces tuberculin and notes that tuberculous animals resist reinoculation.
Behring treats diphtheria with antitoxin.
Maffuci isolates avian tubercle bacillus. (B. gallinaceus).
Bowditch demonstrates non-fatigability of nerve.
W. D. Miller elucidates bacteriology of dental caries.
Pic standardizes treatment of tubercular peritonitis.
Loeb develops theory of tropisms.
Poehl isolates spermin from testis.
Tarchanoff introduces psychogalvanic reflex in diagnosis.
Emil Fischer nvestigates synthetic sugars.
Schleich introduces infiltration-anesthesia.
Head and Campbell investigate pathology of herpes zoster.
A. M. Babcock develops method of estimating fats in milk.

Czech Academy of Sciences and Arts at Prague founded.
Institute Pasteur at Saigon (Cochin China).
Biological Laboratory at Cold Springs Harbor, Long Island.
Dermatological Society at Vienna founded.
Botanical Garden at Tiflis (Siberia).
Volta Bureau (Washington) founded by Alexander Graham Bell.
German Pharmaceutical Society (Berlin) founded.
State Institute for Experimental Medicine at St. Petersburg.
Royal College of Physicians of Ireland (1867) revived.
Écoles annexés de médécine navale at Brest, Rochefort, and Toulon.
Archival Repository of Medical Literature at Berlin.
1890-93—Behring and Kitasato develop antitoxin treatment of diphtheria.
Pandemic influenza.
1890-1909—Haberlandt investigates sensation in plants.
1891—Institute for Infectious Diseases (Berlin) opened under Koch.
Lister Institute for Preventive Medicine (London) opened.
Weldeyer formulates the Neuron Theory (Ramón y Cahal, 1891).
Quincke introduces lumbar puncture.
Walter Snow urges recirculation of factory-air.
Witzel performs gastrostomy (Kader, 1896).
Halsted introduces rubber gloves in operative surgery.
Michelson invents the interferometer.
Bier introduces artificial hyperemia.
Von Bergmann standardizes general aseptic ritual in surgery (Koch, 1881; G. Neuber, 1882-5).
Peter Dettweiler builds first sanatorium for phthisical patients at Ruppertshain.
Gabriel Lippmann introduces color photography.
S. G. Hadin invents hematocrit.
S. M. Copeman introduces glycerinated lymph for smallpox vaccination.
Biological station at Gluboke Lake Russia).
Institute de oftalmologia at Lisbon.
Stanford University (California) founded.
Association of American Medical Colleges (Chicago) founded.
Department of Medicine, University of Texas (Galveston) founded.
Charles Theodore Parkes died.
United States meat inspection law passed.
Michel's clamp and other devices for the closure of operation wounds.
1891-93—S. P. Langley experiments with aeroplanes.
1891-1902—Manson investigates filariasis.
1892—State Hygienic Institute at Hamburg.
Smith and Kilbourne demonstrate tick transmission of bovine piroplasmosis (Texas fever).
Welch and Nuttall identify gas bacillus (Bacillus aerogenes).
Halsted successfully ligates subclavian artery (first portion).
Kossel and Neumann discover pentose in vegetable substances.
Ivanovski describes mosaic tobacco disease.
Calmette investigates serum therapy of cobra-poisoning.
Francis Galton introduces identification by fingerprints (dactyloscopy).
Von Jaksch signalizes value of leucocytosis in diagnosis.
Salkowski and Jastrowitz describe pentosuria.
Sedgewick emphasizes necessity of fly-control in prevention of typhoid fever.
Bokay notes relation between varicella and herpes.
Frank Hartley resects Gasserian ganglion for trigeminal neuralgia.
Hans Buchner shows effect of sunlight on self-purification of streams.
Medical inspection of schools in New York City.
Laboratory of Hygiene (University of Pennsylvania) opened in Philadelphia.
Instituto Bacteriologio de Camara Pestana at Lisbon.
H. L. Coit organizes Medical Milk Commission (certified milk).
Royal Japanese Institute for Infectious Diseases at Chirokane (Tokyo).
American Psychological Association (New York) founded.
Wistar Institute of Anatomy and Biology (1808) incorporated (Philadelphia).
Public Health Act (Manitoba).
Pfeiffer finds the organism of influenza.
V. Noorden studies metabolism.
Invention and use of Murphy Button (Medical Record, 1892, vol. 42, page 665).
Cholera epidemic in Hamburg.
National Medical Society (Norsk Medcinske Selskab) at Christiana (Oslo).
Bibliographical Society (London) founded.
Biological station at Bergen (Norway).
Musée greco-romaine at Alexandria (Egypt).
1892-1900—New Chicago Drainage Canal (28½ miles) constructed.
1892-1907—Illinois and Mississippi (Hennepin) Canal (Chicago sewerage) constructed (opened October 24, 1907).
1892-1913—Sherrington investigates reciprocal innervation of antagonistic muscles.
1892-1918—Haldane invents standard apparatus for estimating respiratory exchange (gasometry of the blood).
1893—Finsen treats smallpox pustules by exclusion of ultraviolet light.
Gilbert discovers paracolon and parathyroid bacilli.
G. R. Fowler performs pulmonary decortication.
Brunton and Cash investigate relation of pharmacological action to chemical structure.
Emil Fischer investigates the synthesis of glucosides.
Feodor Krause excises Gasserian ganglion for trigeminal neuralgia.
Anderson describes first mechanical water-filter.
First open (slow sand) filtration of water supply at Lawrence, Massachusetts.
Herman M. Biggs establishes Diagnostic Laboratory in New York City.
Nathan Straus establishes milk stations in New York City (1893-1919).
Isolation Hospital Act (England)
Nurses' Settlement on East Side (New York City) founded by Lillian Wald and Miss Brewster.
Institut international de sociologie Paris.
International Cholera Congress at Dresden.
Society of Anesthetists (London) England.
Total abdominal extirpation of the uterus with suppurating appendages, as a matter of election (Baldy, Krug, Polk).
Gilchrist describes blastomycosis.
Edgar L. and Elmer Apperson and Charles B. Duryea build the first American made commercially successful motor vehicle.
Frederich G. Banting and Dr. Best isolate insulin.
Bruce designates the bacteria brucella as micrococcus melitensis.
Library, Medical Society of Denver, established.
1893-9—Consolidation (storage and interconnection of conduits) of London water-supply.
1893-7—Erwin Smith investigates bacterial diseases of plants.
1893-1928—Freud, describes sexual (anxiety) neuroses and develops psycho-analysis.
1894—Kitasato and Yersin discover plague bacillus.
Kirstein devises direct laryngoscopy.
Yersin demonstrates indentity of human and rat plague.
Dukes describes "fourth disease."
Paltauf (Vienna) takes over mass-production of diphtheria (antitoxic serum).
Wölfler performs gastro-gastrostomy.
Bruce dicovers trypanosome of magana (T. Brucei).
Rouget discovers strypanosoma of dourine (T. equiperdum).
Banti describes splenic anemia.
Baumann discovers threoiodin.
Medical inspection of schools begun in United States.
Workmen's Compensation Act in Norway.
American Society of Heating and Ventilating Engineers founded.
New York Herald antitoxin fund turned over to Health Department.
Pasteur Institute in Tunis.
Cleveland (Ohio) Medical Library Association founded.
Local Government Act (England).
International Loan Library for the Blind (Deutsche Zentralbücherei) at Leipzig.
Child Study Society (London) founded.
State Hydrophobia Vaccine Institute at Vienna.
Psychiatric Clinic at Rio de Janeiro.

Wellcome Physiological Research Laboratory (London) founded.
Institute Solvay (de physiologie) founded at Brussels.
Field Museum of Natural History (Chicago) founded.
University Biological Station at Dröbak, near Oslo (Norway).
David Bruce found that sleeping sickness is spread by the tsetse fly.
Finlay's theory of the relation o fthe mosquito to the spread of yellow fever.
Schleich introduces infiltration anesthesia.
Sauerbach's Pneumatic Cabinet and underpressure contrivance introduced.
Eastman does eucleation of the stump as well as the myoma by use of serrated gouge, without severing the uterine arteries.
Krug—total extirpation of uterus in cases of extrauterine pregnancy, where the tube which is not pregnant is diseased.
1894-1924—J. N. Langley finances Journal of Physiology (founded 1878).
1895—Röntgen discovers X-rays.
Pfeiffer discovers bacteriolysis (Pfeiffer's phenomenon).
Finsen treats lupus by concentration of ultra-violet light.
Ronald Ross demonstrates development of malarial parasite in mosquito.
Calmette introduces serum against snake venom.
Kocher investigates gunshot wounds from small-calibre bullets.
Zwaardemaker investigates smell and odors with olfactometer.
Wilhelm His reforms anatomical nomenclature.
Marconi introduces wireless telegraphy.
Cameron introduces septic tanks for purifying sewage sludge.
Herbert Haviland Field establishes Concilium Bibliographicum at Zürich.
Nobel Prize Foundation at Stockholm.
Proctor Marble Company (Vermont) employs nurses for sick employees.
Frederick Wilhelms Institut (Berlin) becomes Kaiser-Wilhems Akademie.
New York Public Library founded.
German Museum for Deaf-Mute Instruction at Leipzig.
Bureau of Laboratories (New York Health Department) established.
Imperial Institute of Veterinary Research at Muktesar (India).
Pasteur Institute for Indo-China at Uha-Trang (Annam).
State Serotherapeutic Institute at Vienna.
German Central Committee for Prevention of Tuberculosis at Berlin.
Pasteur Institute at Lille.
Institution of Sanitary Engineers (London) founded.
Instituto Médico at Sacre (Bolivia).
Universid Central (Quito, Ecuador) recognized, with Medical Faculty.
First diphtheria antitoxin issued by the Chicago Health Department (October 5).
Louis Pasteur died.
Buny demonstrates the bacillus abortus.
École d'application des médecins et pharmaciens stagiaires (Tulon) founded (July 26).
Lane Medical Library (San Francisco) founded.
1895-1901—Jules and Augusta Dejerine publish treatise on anatomy of the nerve-centres.
1896—Max Gruber discovers bacterial agglutination.
Murphy performs successful circular anastomosis of blood-vessels.
Joboulay performs sympathectomy for exophthalmic goitre.
Wright, Pfeiffer and Kolle vaccinate against typhoid fever.
Widal and Sicard introduce agglutination test for typhoid fever.
Leo Arons (Berlin) invents mercury vapor lamp (elimination of red or orange rays).
Friederich Bezold devises tuning-fork method of testing and training deaf-mutes.
Bourquelot and Bertrand discover tyrosinase.
W. J. Dibdin and Schweder invent metho dfor bacteriological putrifaction of sewage.
Casper employs ureteral cystoscopy and catherization in diagnosis of renal diseases.
Leopold Freund treats hypertrichosis with Röntgen rays.
Hammarsten discovers pentose in the pancreas.
Merling introduces eucaine.
Farina and Rhn operate on the heart.
Leichtenstern describes essential (three-day) influenza.
University of Lyons founded (July 10).
University of Caen (Calvados) revived.
First Congress of German Heating and Ventilating Engineers (Berlin).
Hermann Rietschel starts Testing Institute for heating and ventilating appliances at Charlottenburg (new buildngs, 1906).
Steinbeck opens Röntgen Institute at Stockholm.
Welch founds Journal of Experimental Medicine.
Institute for Infectious Diseases at Bern (Switzerland).
Association française d'urologie (Paris) organized.
Institut Pasteur de la Loire-Inférieure (Nancy) founded (opened 1898).
Duehrssen's method of vaginal Caesarean section.
Hughes names undulant fever.
Physician's Temperance Society (Verein Abstinenter Aerzte) at Berlin.
Bacteriological Institute at Kiev (Ukraine).
Finsen's Phototherapeutic Institute (Medicinske Lysinstitut) at Copenhagen.
Bacteriological Laboratory at Bombay.
National Union of Hungarian Physicians at Budapest.
Botanical Garden at New York.
1896-9—Schenk describes sporotrichosis.
1897—Shiga discovers dysentery bacillus.
Bordet discovers bacterial hemolysis.
Emil Fischer synthesizes caffeine, theobromine, xanthin, guanin, and adenin.
Flugge states theory of droplet infection.
Jonnesco performs sympathectomy for glaucoma.
Ogata finds plague bacillus in fleas of plague-ridden rats.
Nuttall demonstrates fly-transmission of plague bacilli.
Ehrlich states side-chain theory of immunity.
E. Van Ermengem discovers Bacillus botulinus.
E. Schigg and H. Kümmel treat lupus successfully with Röntgen rays.
J. V. Laborde introduces artificial respiration.
Horton Smith shows danger of chronic (urinary) typhoid carriers.
Stroganoff introduces sedative (preventive) treatment of puerperal eclampsia.
Nathan Brill describes mild endemic typhus in New York.
Germano shows that dryness is fatal to bacteria.
Apostoli introduces high-frequency electrotherapy (arsonvalisation) in gynecology.
Kyoto Imperial University (Japan) founded.
Röntgen Society (London) founded.
Marine Biological Station at Westport (Scotland).
Institut national d'hygiéne et de bacteriologie (Luxemburg) founded.
Sir Ronald Ross discovers that malarial fever is transmitted by the bite of the anopheles mosquito and not bad air, miasma, or infested water.
Recognition of action of precipitin and agglutinin in seroanalysis.
Haffkine's serum used successfully against the bubonic plague in India.
Rehn first successfully sewed a wound of the heart.
G. W. Crile's experimental research into surgical shock.
American Medical Association incorporated in Illinois (September 25).
Chicago Medical Society incorporated.
G. C. Whipple establishes Mount Prospect Laboratory (Brooklyn Water Works).
New York (State) adopts compulsory notification of tuberculosis (H. M. Biggs).
Municipal Milk Station at Rochester, New York.
1897-8—Mac Callum demonstrates sexual conjugation of parasite of avian malaria.
1897-1902—Cannon investigates movements of stomach and intestines by Rontgenoscopy.

1897-1904—Ramón y Cajal publishes treatise of the nervous system.
1898—P. and S. Curie discover radium.
Loeffler and Frosch investigate filterable viruses.
Looss demonstrates mechanism of hook-worm infection.
Theobald Smith isolates and cultivates bovine tubercle bacilli.
Emil Fischer isolates the purin nucleus of uric acid transformation.
Dreser introduces heroin.
Simonds demonstrates transmission of bubonic plague by fleas.
Bordet and Tsistovich demonstrate agglutinins, hemolysins and precipitins in blood-serum treated with alien blood-corpuscles.
Killian introduces direct bronchoscopy.
Vincent describes spirillo-bacillary angina.
Tschirch explains chemical mechanism of common purgatives
L. O. Howard publishes Bulletin on mosquito-eradication.
Arloing and Courmont introduce sero-agglutinations of tubercle bacilli in diagnosis.
Davis and Varnier employ X-rays in obstetric diagnosis.
Affiliation of Rush Medical College with University of Chicago (January 5).
Cornell University Medical College (New York City) founded.
Pabloff investigates digestive action of glands.
London College of Physiology founded.
Faculty of Medicine at Porto Alegre (Brazil) organized.
Phillipine Health Service (Manila) organized (Board of Health, 1901).
Bavarian Hydrologic Station at Munich.
Prehistoric Museum at Ventimiglia (Italy).
Institute for the Study of Malignant Disease (New York) founded.
Mechanical water-filter installed at Elmira, New York.
Experiments on chlorine purification of sewage at Hamburg.
Samuel W. Abbott publishes second Massachusetts Life-table.
State Sanitarium for Tuberculosis in Massachusetts.
Marchoux founds Bacteriological Laboratory for East Africa at St. Louis (Senegal).
German Pathological Society (Dresden) organized.
Washington Academy of Sciences organized.
Biological Experiment Station (Harvard University), at Cienfuegos, Cuba.
1898-1908—Zeppelin experiments with dirigible airships.
1898-1915—Sherrington investigates decerebrate rigidity.
W. T. Porter finances American Journal of Physiology.
1898-9—Walter Reed and others demonstrate that typhoid fever may be transmitted by contact, by flies, by water and food pollution, by unclean hands, by polluted water or milk.
1898-1920—Langley investigates autonomic system.
1899—Reed, Carroll, Lazear, and Agromonte demonstrate mosquito transmission of yellow fever.
Jacques Loeb produces chemical acrivation of sea-urchin egg.
Ramón y Cajal describes histology of cerebral cortex.
Weichselbaum and Jeager isolate meningococcus.
Grassi and Bignami prove that anopheles is sole transmitter of malaria.
Nuttall summarizes role of insects as vectors of communicable diseases.
Spiller introduces chordotomy of neuralgia.
Kossel states theory of protamin nucleus in protein transformations.
H. Dreser introduces aspirin.
Dewar liquefies air, oxygen, and hydrogen.
Beijerinck isolates filterable virus of mosaic tobacco disease.
Albert Hazen construct sslow sand water-filter for Albany, New York.
National University at Peking (China) founded.
London School of Hygiene and Tropical Medicine founded.
Liverpool School of Tropical Medicine founded.
Edinburg School of Tropical Medicine founded.
Instituto Nacional de higiene de Alfonso XIII (Madrid) founded.
Medical Library Association (United States) founded.
Ehrlich's Institute for Experimental Medicine (Frankfurt) founded.
Children's Court at Chicago.
Moscow Odontological Society founded (disbanded 1919; revived 1922).
New York Zoological Park (Bronx) opened.
Societies of Neurology and of Pediatrics founded at Paris.
Royal Hygienic Institute at Posen.
Hackett Medical College (Canton, China) founded.
Cancer Commission of Harvard University founded.
American Anthropological Association (Washington, D. C.) founded.
Parliament authorized Derwent Aqueduct (60 miles) for water-supply of Derby, Leicester, Sheffield and Nottingham.
Vital Brazil founds Instituteo Butantan (São Paulo, Brazil) for manufacture of serum against snake-venom.
1899-1900—Reed completes demonstration of mosquito transmission of yellow fever.
Steinbeck treats cancer with Röntgen rays.
1899-1906—Emil Fischer investigates amino-acid constituents of protein molecule.
1900—Gärtner invents ronometer for measuring blood-pressure.
Bier introduces spinal (cocaine) anesthesia (Corning) into general surgery.
Widal and Ravaut introduce cytodiagnosis.
Gersung introduces prothetic (paraffin) injections.
Wertheim devises radical operation for uterine cancer.
Kastle and Loevenhart demonstrate reversibility of enzymes (lipase).
Sjögren and Stenbeck treat superficial epithelioma with X-rays.
A. Walkhoff shows destructive effect of radium on the tissues.
Willstätter and Bode produce synthetic cocaine.
Park recommends control of milk (New York City) by bacterial tests.
Woodhead disinfects water-supply of Maidstone (England) with chlorine after typhoid epidemic.
Danysz starts experimental epidemiology.
Mechanical water-filter installed at Lorraine (Ohio).
University of Odessa founded.
Hartmann-Bund (Verband der Aerzte Deutschlands) founded at Leipzig.
Institute for Medical Research at Kaulu Lampur (Federated Malay States).
American Association of Pathologists and Bacteriologists (Boston) founded.
American Röntgen Ray Society founded.
Yale Botanical Garden at New Haven.
Institut general psychologique (Paris) founded.
College of Physicians and Surgeons (Chicago) becomes College of Medicine, University of Illinois (May 1).
German Central Cancer Committee (Berlin) founded.
Royal Hygienic Institute at Beuthen (Upper Silesia).
Volga Biological Station at Saratov (Russia).
Philippine Library and Museum (Manila) established.
Baylor University College of Medicine (Dallas, Texas) founded.
Charles J. Whalen discovers specific action of guaiacol in malaria.
Sir Almroth Wright prepares vaccination against typhoid fever.
1900-1903—Leishman and Donovan discover protozoön of kala azar.
1900-1904—Pschorr and Vongerichten demonstrate phenanthren nucleus of morphine and codeine.
1900-1906—Mills and Spiller describe unilateral type of spastic spinal paralysis.
1900-1922—Sixteen Indian cholera epidemics radiate from Kimbh Hardwar fair.
1901—De Vries states mutation theory.
Dutton and Ford discover trypanosome of sleeping sickness (Trypanosoma gambiense).
Bordet and Gengou demonstrate complement-fixation.
Aschkinazi and Caspari show that radium checks growth of bacteria.
Dantes and Bloch treat lupus with radium.
Sjögren treats lupus with x-rays.
Landsteiner discovers blood grouping (iso-agglutination).
Ayerza describes cyanotic sclerosis of pulmonary artery (cardios negros).
Emil Fischer devises ester method of isolation of amino-acids.
Gowland, Hopkins and Cole isolate trytophan (Stadelmann, 1890).
Felix Marchand investigates wound-healing.

Takamine isolates adrenaline.

Pavloff isolates enterokinase.

Otto Conheim discovers erepsin.

Nencki and Machlevski show relationship of hemoglobin and chlorophyll (hemopyrrol).

Uhlenhuth introduces precipitin test for blood-stains (Bordet, 1898).

Suddeck investigates ether intoxication.

Planck announces quanta theory of emission of radiant energy (verified by Einstein, 1905).

Temper and Pfutzner constructs central-heating plant at Dresden.

Elmassian discovers trypanosome of mal de caderas (T. Elmassiani).

Lister Institute of Preventive Medicine (London) founded.

Rockefeller Institute for Medical Research (New York) opened.

Instituto Oswaldo Cruz (Rio de Janeiro) opened.

Biometrika founded by Galton, Pearson, and Weldon.

Hygienic Laboratory, United States Public Health Service, opened.

State Institution for Investigation of Food Substances at Berlin.

German Orthopedic Society (Berlin) founded.

German Society for School Hygiene (Berlin) founded.

German Society of History of Medicine and Science (Leipzig) founded.

State Serum Institute at Copenhagen.

Medico-Legal Society (London) founded.

Award of Nobel Prizes begun.

Museum of History of Medicine in Hôtel Dieu at Rouen.

Philippine Health Service (Manila) established (September 29).

Philippine Bureau of Science (Manila) established.

Nuttall founds Journal of Hygiene.

1901-05—Sanitary Institute (London) gives lectures to teachers on applied hygiene.

1901-26—Frazier introduces section of posterior (Sensory) trigeminal roots for neuralgia.

1902—Carrel introduces new methods of vascular anastomosis and transplantation of tissues.

G. Kelling introduces exploration of peritoneal cavity by inflation.

Albers-Schönberg invents compression-diaphragm for Röntgenography.

Emil Fischer, Leuchs, and Weigert synthetize serin, glucosamin, and lysin.

R. Herzog discovers site of Asclepieion at Cos.

Helzknecht devises method of sodimetry for X-rays.

Robert Weir performs appendicostomy.

P. C. Hewitt perfects quartz mercury vapor lamp.

McClung isolates sex-chromosomes.

Von Pirquet postulates formation of antibodies as termination of incubation period.

Ravenel isolates bovine tubercule bacillus from a tuberculous child.

Preston Kyes shows lecithin to be the complement of cobra-hemolysin.

Rutherford and Soddy demonstrate radio-activity of thorium and its emanation.

Schild introduces atoxyl.

H. von Tappeiner investigates photodynamic substances.

Steinbuchel introduces morphine-scopolamine anesthesia in obstetrics.

Finney performs gastro-duodenostomy.

Theiler discovers trypanosome of galziekte (T. Theileri).

J. R. Ewald investigates end organ of octavus (auditory) nerve.

John McCormick Institute for Infectious Diseases (Chicago) founded.

General Education Board (Rockefeller Foundation) New York.

Carnegie Institution of Washington founded.

Imperial Cancer Research Fund (England) founded.

Royal Academy Medical College (London) founded.

Society of Bavarian Psychiatrists (Munich) founded.

Institute for Biological Experimentation at Vienna.

Société française d'histoire de médécine (Paris) founded.

School of Tropical Medicine (Lisbon) founded.

Institut supérieur de vaccine (Vaccine Service of the Academy of Medicine) at Paris.

Society of German Food Chemists (Berlin) founded.

German Society for Prevention of Venereal Diseases (Berlin) founded.

National Serotherapeutic Institute at Vienna (new building, 1907).

American Anthropological Society (Andover, Massachusetts) organized.

Société de médecine physique (Antwerp) organized.

Metropolis Water Act (England).

Christian Fenger died.

1902-3—Jensen propagates cancer through several generations of mice.

1902-6—Bayliss and Starling investigate hormones.

1903—Metchnikoff inoculates higher apes with syphilis.

Von Pirquet and Schick identify serum-sickness with anaphylaxis.

Rollier treats surgical tuberculosis with ultra-violet light at Leysin.

Koch stresses danger of healthy typhoid carriers as agents of infection.

Emil Fischer and von Mehring introduce veronal.

Arthus produces local anaphylaxis.

Johannsen investigates pure line inheritance.

Danysz shows selective action of radium on malignant tumors.

Einthoven invents string galvanometer.

Albers-Schönberg notes sterilizing effect of X-rays on gonads.

Bruce demonstrates transmission of sleeping sickness by tsetse fly.

Benno Crédé introduces collargol.

Dunbar discovers toxin and antitoxin (pollantin) of hay fever.

Emil Fischer devises method of synthetizing polypeptids.

Josué produces experimental arteriosclerosis by adrenalin injections.

Mosetig-Moorhof devises method of plumbing bony cavities.

Posternac isolates phytin.

J. W. Wright discovers Leishmania bodies in endemic ulcers.

Riva Rocci invents sphygmomanometer.

Ramsay and Soddy demonstrate transmutation of radium into helium.

Schaudinn differentiates Entamoeba histolytica from E. coli.

Siedentopf and Zsigmondy invent ultramicroscope.

Buchner and Meisenheimer discover enzymes of lactic acid and vinegar fermentation.

Almroth Wright and Douglass investigate opsonins.

Castelloni discovers Trypanosoma Ugandae.

Senn treats leukemia with Rontgen rays.

Dejerine describes thalmus opticus syndrome.

Janet describes psychasthenia.

Vaccination obligatory in Spain.

Henry Phipps Institute for Tuberculosis (Baltimore) opened.

American Society of Tropical Medicine (Philadelphia) founded.

Wellcome Tropical Research Laboratories at Khartoum (Soudan).

American Genetic Association (Washington) founded.

Société de médecine physique (Paris) founded.

Berlin Museum of Safety founded.

Germanic Museum (Munich) founded.

Permanent Exhibit for Industrial Welfare (Berlin) opened.

German Society for Prevention of Quackery (Berlin) founded.

Illinois Medical Society incorporated.

Control of hookworm disease in Porto Rico by Ashford.

1903-4—Frosch, Drigalski, and Donitz, establish theory of typhoid (bacillus) carriers.

Bacteriological Institute at Zagreb (Jugoslavia).

1904—Atwater invents respiration calorimeter.

Sauerbruch introduces pneumatic cabinet for thoracic surgery.

Chittenden investigates minimum food requirements.

Max Coletta introduces digalen.

Fourneau introduces stovaine (anesthesia).

Giemsa introduces modification of Romanovsky stain (1890) for protozoa (plasmodium and spirochaetae).

Schmittenhelm isolates oxydase.

F. Stolz determines composition of adrenalin.

Weichardt investigates toxins of fatigue.

Arneth employs blood-picture in diagnosis.

Helene Stöcker founds Die Neue Generation.

Gradenigo describes sixth nerve syndrome.
Foveau de Courmelles treats uterine myonata by X-rays.
University of Sofia (Bulgaria) founded (Medical Faculty, 1918).
Deutsche physiologische Gesellschaft (Leipzig), founded.
Physiological Society (Philadelphia) founded.
Ethnological Society (London), founded.
National Tuberculosis Association (New York) founded.
Society for Experimental Psychology (Berlin) founded.
Academia Nacional de Medicina (Caracas) founded.
Tortugas Laboratory (Carnegie Biological Station) at Key West (Florida).
Association international des médécins mécano-thérapeutes (Brussels) founded.
Pineles publishes clinical and experimental contributions to the physiology of the thyroid and parathyroid.
Todd and Dutton discover cause of relapsing fever—a spirillum conveyed to the human by the bite of lice and ticks.
1905—Schaudinn discovers parasite of syphilis. (Treponema pallidum).
Bordet and Gengou isolate bacillus of whooping-cough.
Vassale employs parathyroid extract in tetany.
Chaput employs stovaine in spinal anesthesia.
Konig describes osteochondritis dissecans.
Winter resuscitates the heart by adrenalin injections.
Flügge and pupils show effects of vitiated air to be due to heat and humidity.
Dutton and Koch demonstrate tick-transmission of African relapsing fever.
Alfred Einborn discovers novocaine.
Ehrlich demonstrates change of experimental carcinoma transplants into sarcoma.
Koch maintains that sleeping sickness is transmitted by several species of Glossina.
Levaditi employs Ramón y Cajal's silver stain for spirochetes.
Chapin abandons terminal disinfection at Providence (Rhode Island).
Wright brothers make successful flight with aeroplane.
Kaiserin Augusta-Victoria Haus (for combating infantile mortality) at Berlin.
German Röntgen Society (Berlin) founded.
Société de pathologie exotique (Paris) founded.
King Edward VII College of Medecine (Singapore) founded.
American Society for Psychical Research founded.
Carnegie Laboratory for Plant Physiology at Tucson (Arizona).
Institute of Ophthalmic Opticians at London.
American Sociological Society (Chicago) founded.
Vajirañana National Library of Siam at Bangkok.
Schaudinn and Hoffman discover spirochaeta pallida.
1905-7—F. S. Lee investigates fatigue.
1906—Wasserman introduces serum diagnosis of syphilis (modified by Naguchi 1911).
Bárány develops theory of vestibular nystagmus.
Einthoven obtains telecardiogram from the heart at a distance.
Von Pirquet states doctrine of allergy.
Ransohoff performs discussion of the pleura.
Voelcker and von Lichtenberg examine kidney with X-ray (pyelography).
Perseval flies air ship.
E. Beck introduces bismuth paste in Röntgenography.
MacDougal demonstrates heredity of experimentally acquired characteristics in plants.
Neisser demonstrates susceptibility of lower apes to syphilis.
Federal Food and Drug Act (United States) passed (June 30, 1907).
Provision of Children's Meals Act (England).
Compulsory medical inspection of schools in Massachusetts.
American Association for Labor Legislature founded (February 15).
National Committee on Child Labor (United States) founded.
Courses in public hygiene instituted at University of Pennsylvania.
Carnegie Nutrition Laboratory (Boston) opens.
Institute for Experimental Cancer Research at Heidelberg.
Institute for Experimental Pedagogics and Psychology at Leipzig.
Chicago Tuberculosis Institute incorporated and opened.
American Society of Biological Chemists (Ann Arbor) founded.
Chemotherapeutic Institute (Georg Speyer Haus) at Frankfort-on-the-Main.
Institute for Applied Psychology at Berlin.
State School of Tropical Medicine (Brussels) founded.
Berlin Society for History of Medicine and Science founded.
Pathological Society of Great Britain and Ireland (Cambridge) founded.
Fernand Henrotin died.
First systematic bacterial inspection of Chicago milk from dairy farms.
Kaiserin Friedrich Haus (for Post-Graduate Medical Study) at Berlin.
1906-13—Willstätter investigates chlorophyll.
1906-20—Gowland Hopkins investigates accessory food-factors (vitamins).
1906-25—Blair Bell introduces use of pituitrin as oxytocic in lingering labor.
1907—Von Pirquet introduces cutaneous reaction in tuberculosis.
Calmette and Wolff-Eisner introduce conjunctival reactions in tuberculosis.
Theobald Smith suggests use of toxin-antitoxin in diphtheria (Behring, 1912).
Emmerich and Löw obtain pyocyanase from Bacilluspyocyaneus.
Ricketts demonstrates tick-transmission of Rocky Mountain fever.
Emil Fischer obtains linkage of 18 amino-acids (protein molecule).
Ramsay obtains lithum by transmutation (irradiation) of copper.
Willstätter and Hochader obtain phytol nucleus from chlorophyll molecule).
Adolph Schmidt employs functional test-meals in diagnosing intestinal disorders.
Zwirn performs kerotoplasty or corneal opacity.
Fletcher and Hopkins demonstrate role of lactic acid formation in normal muscle contraction.
Benedict and Milner show that excess CO_2 is harmless in cool room.
Ramsay Hunt describes geniculate ganglion syndrome.
University of Saskatchewan (Saskatoon) founded (opened 1909).
Tokohu Imperial University at Sendai (Japan).
International Association of Medical Museums (Montreal) founded.
Royal Society of Tropical Medicine and Hygiene (London) founded.
Royal Medical and Chirurgical Society (1805) rechartered as Royal Society of Medecine (London).
Bureau international contre l'alcoolisme founded at Stockholm.
International sleeping sickness congress in London.
Italian Society of Medical History (Florence) founded.
Notification of Births (Act) England.
Angelo Mosso founds Monte Rosa Institute (University of Turin) at Alagna Sefia).
Clyde Snook, Edwin W. Kelly and G. Herbert White (America) develop high tension transformer for X-ray tubes.
Sudhoff founds Archiv für Geschichte der Medizin (Leipzig).
1907-8—Marage invents vocal siren (test for deafness) and photographs the voice.
1908—Leonard Finlay produces experimental rickets by deficient diet.
Bernstein investigates temperature-coefficients of muscular energy.
Buerger describes thrombo-angiitis obliterans.
Kamerlingh Onnes liquefies helium.
Willstätter and Benz show crystallized chlorophyll to be a magnesium product.
Gabriel Lippman introduces relief-photography.
Zeppelin constructs improved air-ship.
Peking Union Medical College founded by Rockefeller Institute.
University of the Philippines (Manila) founded (College of Medicine, 1910).
Royal Army Medical College opened at Millbank.
Tropical Diseases Bureau (London) founded by Colonial Office.
Psycho-neurological Institute (St. Petersburg) founded.
Spanish Association for the Advancement of Sciences (Madrid) founded.

Institut für Radiumforschung at Vienna.
Clinic of Infantile Surgery at Montpelier.
Chicago adopts compulsory pasteurization of milk.
Bureau of Child Hygiene in New York City (Health Department).
American Public Health Association standardizes tests for milk.
Water-supply of Union Stock-yards (Chicago) disinfected by chlorine gas.
German Society for Racial Hygiene (Berlin) founded.
250 special hospitals for tuberculosis in United States.
International Moral Education Congress in London.
Denver (Colorado) Medical Society founded.
Biological Station at Kosina (Russia).
Sulfanilamide first synthetized in the dye industry.
1908-9—Ante-natal hygiene started in New York and Boston.
1908-10—William Pasteur describes massive (post-operative) collapse of the lungs.
1909—Srensen investigates hydrogen-ion concentration.
F. F. Russell vaccinates United States Army against typhoid fever.
Förster operates for locomotor ataxia.
Much introduces cobra-venom reaction for insanity.
Sherrington investigates proprioceptive reflexes.
Metropolitan Life Insurance Company (New York) introduces home nursing for industrial policy-holders.
University of Neuchâtel founded (May 18).
Society of Medical History (Chicago) founded.
University College (National University of Ireland) at Dublin.
German Central Committee for Dentistry in School Children (Berlin) organized.
State Dental Institute at Christiania (Oslo) founded.
Society of Medical Missionaries (Leipzig) founded.
German Medical School for Chinese at Woosung, Shanghai (now Fungchi Medical High School).
Illinois Society for Mental Hygiene (Chicago) founded.
Sanborn and Nicolle proved that typhus fever is conveyed by the bite of a louse.
Ehrlich announces side-curtain theory.
1909-13—Marine and Lenhart standardize iodine treatment of goiter.
1909-25—L. and M. Lapicque investigates chronaxia.
1910—R. G. Harrison demonstrates outgrowth of nerve-fiber in extravital culture (1906-10).
Flexner produces poliomyelitis experimentally.
Vedder demonstrates amebicidal action of emetine.
Rollier treats tuberculosis with ultraviolet light (heliotherapy) at Cergant (Ecole de Soleil).
Chapin, Winslow and Robinson emphasize danger of contact infection in communicable diseases.
Martin Fischer explains edema as effect of acids on swelling of proteins.
Hasselbalch devises formula for estimating hydrogen-ion concentration.
Ehrlich and Hata introduce salvarsan (606).
Adelaide Nutting establishes course of public-health nursing at Teachers College (Columbia University, New York).
Nelson Morris Memorial Institute for Medical Research (Chicago) founded.
Rockefeller Sanitary Commission for hookworm prevention (New York) organized.
State Serum Institute (Copenhagen) founded.
Laboratorie de police technique (Lyons) organized.
Berlin Psychoanalytic Society founded.
Veterinary High School (Lisbon) founded.
Centenary of University of Berlin.
National Committee for Preventing Blindness (United States) organized.
Illinois State Commission on Industrial Diseases organized.
Austrian Society for Investigation and Preventing of Cancer (Vienna) founded.
Phonetic Laboratory at Hamburg.
Association internationale des médecins scolaires founded.
Clinic of Industrial Diseases (Milan) opened (March 20).
Institut Pasteur at Algiers.
Archeological Museum at Assuan (Egypt).
Marine Laboratory (Pomona College) at Laguna Beach, California.
Theobald Smith suggests human infection from bacillus abortus.
1910-11—Medical Plant Garden (University of Minnesota) at Minneapolis.
1910-13—Libman describes bacterial endocarditis.
1910-19—Dale, Laidlow, and Richards investigate histamin.
1910-24—Carrel, Burrow (etal) investigate tissue culture and transplantation.
1910-27—A. V. Hill investigates thermodynamics of muscular contraction.
1911—Carrel investigates extravital culture and rejuvenation of tissues.
Cushing describes dyspituitarism.
McCoy and Chapin isolate bacillus of tuleremia.
Naunyn describes infectious cholangitis.
Payton Rous transmits sarcoma via filterable virus.
Gullstrand receives Nobel Prize for optical researches.
Donnan introduces doctrine of equilibrium about a semipermeable membrane impermeable to one ion only (Donnan equilibria).
Bale isolates bufagin.
Meinicke introduces flocculation test in syphilis.
American Public Health Association publishes standard methods for examining milk.
California establishes notification of venereal diseases (July 1).
Universities of Oporto and Lisbon founded.
Kyushu Imperial University at Fukuoka (Japan) founded.
University of Iceland (Reykjavik) founded (June 11).
Biochemical Society (London) founded.
Otho S. A. Sprague Memorial Institute for Medical Research (Chicago) founded.
National Council for Industrial Safety (United States) organized.
Casimir Funk discovered Vitamin B1.
International Society for Individual Psychology (Vienna) founded.
Public Health Ministry (New Zealand) organized.
Kaiser Wilhelm Society for Advancement of Science (Berlin) founded.
Ontario Act regulating municipal milk supply.
National Health Week (England).
George Crocker Cancer Research Fund.
Hygienic Exhibition at Dresden.
Milk Institute at Wangen (Bavaria).
Milk Institute at Fominskoe, Vologda (Russia).
1911-14—Casimir Funk investigates vitamines.
1911-15—Van Slyke devises methods of estimating amino-nitrogen and amino-acids.
1911-20—American Museum of Safety at New York.
1911-27—Pavloff investigates conditional reflexes.
1912—Bass cultivates malarial plasmodium in vitro.
Nicole, Anderson and Goldberger produce experimental typhus in monkey.
Weber and Lorey effect X-ray examinations of abdominal viscera (pneumoperitoneum).
Beurman and Gougerot describe sporotichosis.
Von Behring employs toxin-antitoxin immunization against diphtheria.
Ransohoff performs omentopexy for gastric prolapse.
Berlin Surgical Society founded.
Naval Medical School (Royal Naval College) at Greenwich (England).
South African Institute for Medical Research (Johannesburg) founded.
National Organization for Public Health Nursing (United States) organized.
German hygienic Museum at Dresden (Exhibit of 1911).
Division of Industrial Hygiene (United States Public Health Service) organized.
German Society for Lighting Technics (Berlin) founded.
Austrian Society for School Hygiene (Vienna) founded.
Institute for Hygiene and Infectious Diseases at Saarbrücken (Now Medical Bureau for the Saar Region).
Ukranian Medical Society at Lemberg (Lwow).
"Ose" (Society for Jewish Hygiene) at St. Petersburg (transferred to Berlin 1923).
Lombard Medical Society (Societá Lombarda) at Milan.
Chlorination of Chicago water-supply begun.

Elsberg renders intramedullary affections of spinal cord accessible.
Dr. F. G. Gade founds Pathological Institute at Bergen (Norway).
Pathological Institute at Dortmund (Prussia).
1912-13—Gustav Embden and co-workers investigate carbohydrate metabolism.
1912-14—Institut du radium (Curie Foundation) erected at Paris.
1912-16—Cannon investigates effect of adrenal secretions on emotions.
1912-22—Folin and co-workers devise methods of estimating amino-acids.
1912-26—Rudolph Magnus investigates postural reflexes.
1913—Abderhalden introduces ferment reactions.
Schick introduces susceptibility tests for diphtheria.
Krönig and Gauss introduce morphine-scopolamine anesthesia in obstetrics (twilight sleep).
Barthe devises ambrine treatment for burns.
Revival of doctrine of the constitution.
Mollgaard introduces sanocrysin.
Douglass, Haldane, Henderson, and Schneider investigate effect of acclimatization to high altitudes (Pike's Peak) on respiration.
Dakin and Dudley investigate intermediary metabolism of carbohydrates and proteins.
Kinner Wilson describes degeneration of lenticular nucleus.
Aschoff and Landau map out the reticulo-endothelial system.
Holst and Frölich postulate Vitamin C.
Vianna employs antimony tartarate in Leishmaniasis.
Coolidge tube introduced.
Polter-Bucky Diaphragm introduced.
Bose investigates sensation in plants.
Medical Research Committee (London) organized.
International Medical Congress at London.
Wellcome Medical and Medico-Historical Museums (London) founded.
Rockefeller Foundation (New York) chartered.
International Health Board (Rockefeller Foundation) organized.
Institute for Cancer Research (New York) opened.
Institute for Cancer Research at Hamburg.
Eugenic Research Association (Cold Spring Harbor, Long Island) organized.
Workmen's Compensation Acts effective in 41 countries.
American Society of Experimental Pathology founded.
United States Army Medical Research Board at Manila (reorganized 1922).
German Society for Applied Entomology (Munich) founded.
Bibliographical Institute (Moscow) organized.
Société lorraine de psychologie appliqué (Nancy) founded.
Italian Association for Legal Medicine (Turin) founded.
Cook County Psychopathic Hospital (Chicago) opened.
New York Commission on Ventilation organized.
Netherland Society for Prevention of Venereal Diseases (Amsterdam) founded.
Mental Hygiene Committee (Baltimore) organized.
Massachusetts Society for Mental Hygiene (Boston) organized.
International Society for Investigation of Sex (Berlin) organized.
Saxon Army Museum at Dresden.
Botanic Garden at Cassel (Germany).
National Botanic Gardens at Kirstenbosch (South Africa).
The American College of Surgeons was founded.
Casimir Funk discovers Nicotinic acid.
Sex gland implantation Lespinasse.
Mycological Institute at Hamburg.
1913-15—Sir Leonard Hill, Haldane, and others confirm Flügge's findings on effects of humid heat (1905).
1913-15—Dochez, Gillespie, and Avery type the pneumococci.
McCollum, Davis and Kennedy allocate vitamines A and B.
1913-20—Bourquelot investigates synthesis of glucosides.
1913-27—Maude Slye experiments on heredity susceptibility to, and immunity from cancer.
1914—Hungarian University at Pressburg founded.
Royal Hungarian Unversity at Debrecen founded.
Dejerine describes parietal lobe syndrome (sensitive cortex).
Margaret and Warren Lewis study mitochondria.
Christiansen, Douglas, and Haldane investigate CO_2 carriage by the blood.
Barcroft investigates effect of high altitudes at Cerro de Pasco.
Prussian State University at Frankfort-on-the-Main founded (June 10).
St. Petersburg becomes Petrograd.
China Medical Board (Rockefeller Foundation) organized.
Kitasato Institute for Infectious Diseases (Tokyo) founded.
Medical Research Council (London) organized (Medical Research Committee, 1913).
National Institute for Medical Research (London) founded.
Société de chimie biologique (Paris) founded.
Pacific Association of Scientific Societies (Berkeley, California) organized.
Government Institute for Physiotherapy (Moscow) founded.
National Council for Combating Veneral Disease (London) organized.
American Council Hygiene Association (New York) organized.
Graduate School of Tropical Medicine and Public Health (Manila) founded.
Veterinary Institute at Christiania (Oslo).
New School of Physiology at Cambridge (England) opened.
Eugenics Education Society (Chicago) founded.
City Institute of Obstetrics and Gynecology at Hamburg.
Brady Urological Institute (Johns Hopkins University) at Baltimore.
Russell Park, M.D., died.
Lydston grafts testicle for improvement of sex function, skin, circulation, and arterio sclerosis.
1914-15—Ido and Inada establish spirochaetal origin of infectious jaundice.
1914-18—World War.
1914-19—E. C. Kendall discovers and investigates thyroxin.
1915—Carrel-Dakin treatment of infected (gunshot) wounds.
Delousing of troops organized.
Preventive inoculation against tetanus in gunshot wounds.
Organization of methods of gas-defense.
Futaki and Ishiwara discover parasite of rat-bite fever.
Simmonds describes pituitary dwarfism.
Ramsay Hunt describes progressive cerebellar dyssynergy.
Weber devises method of examining the abdominal viscera by Röntgenography (pneumoperitoneum).
Kjelland forceps introduced.
Infant mortality rate (New York) reduced from 27 (1885) to 9.4 per 100.
Mayo Foundation for Medical Education and Research (Rochester, Minnesota) organized.
Institute of Medicine (Chicago) organized (April 22).
S. S. Goldwater establishes occupation diseases clinic (New York City).
New York City abandons terminal disinfection in favor of control of contacts and carriers.
National Committee for Prevention of Blindness (United States) organized.
Société française de pédagogie (Paris) founded.
Milk and Dairies Act (England).
American Association of Industrial Physicians and Surgeons founded.
Chicago Institute of Medicine organized.
E. A. Leonard, Jr., introduces intraspinal injection of magnesium in delirium tremens.
1915-16—Mott etal. investigate shell-shock.
1915-20—Goldberger investigates pellagra.
1916—Dakin introduces dichloramin-T.
Werner describes Volhynian fever.
Vanghetti introduces cineplasty.
Bull introduces antitoxin for gas-gangrene.
Carlson investigates hunger.
Kasmelson treats purpura hemorrhagica by splenectomy.
Government exhibit of devices for industrial safety (National Museum, Washington).
Physiotherapeutic Institute (Petrograd) founded.
Experimental Institute for Nutritional Physiology (Moscow) founded.
American Radium Society (St. Louis) founded.
Higher Medical School for Women at Ekaterinoslav (Ukraine).
National Research Council (Washington, D. C.) organized.

Ekaterinoslav Medical Institute at Dripropetrovsk (Ukraine).
National Bacteriological Institute at Buenos Aires.
Kroenig and Siegel introduce paravertebral anesthesia by blocking the intercostal nerves.
Carrel and Dakin discover the solution named after them (J.A.M.A. 66: 775, 1585, 1916).
John Benjamin Murphy died.
1916-17—University of Perm (Russia).
1917—Gray and Lemâitre establish principle of wound excision (debridement) (Desault, 1790).
Von Economo describes ancephelitis lethargica.
Mental Tests employed in recruiting soldiers.
Willems standardizes early mobilization in wounds of joints.
Ruth Tunicliff discovers diplococcus in measles.
Meltzer and Lyon introduce duodenal (non-surgical) drainage of gall bladder.
Alice Evans establishes relation of Bacillus melitensis and B. abortus (Brucella).
Wagner von Jauregg treats paresis by superinfection with malarial fever.
Windaus extracts colesterin (Vitamin D) from cod-liver oil and formulates it.
Levidati describes acute multiform erythema due to streptobacillus moniliformis.
University of Abo (1640) merged into separate Swedish and Finish Universities.
Courses in public health started at Yale University.
School of Hygiene, Johns Hopkins University, established (instruction begun 1918).
Institute for Experimental Biology at Moscow (reorganized, 1920).
State Pharmaceutical Institute at Warsaw.
Municipal Contagious Disease Hospital (Chicago) opened.
Institution for the Blind (Blindenstudienanstalt) at Marburg.
Netherlandish Society for Psychoanalysis (The Hague) founded.
Institut für colloid-Forschung (Theodor Stern Haus) at Frankfurt-am-Main.
Bose Research Institute (Plant Physiology) at Calcutta.
Annals of Medical History (New York) started.
Haldane introduces oxygen as a therapeutic measure.
Chvostek reintroduces iodine therapy in hyperthyroidism.
Browing advocates intravenous injection of proflavin in septicemia.
1917-18—State University at Samara.
American commission investigates trench-fever.
Heavy typhus epidemic in Mexico.
1918—State Universities I and II established at Moscow (Number I founded 1755).
State Universities established at Ekaterinoslav (Ukraine), Irkutsk (Siberia), Nijni Novgorod, Smolensk (Medical Faculty 1920), Tiflis (Georgia) and Voronej.
Folk University at Taskent (Turkestan) founded.
Hokkaido Imperial University at Saparo (Japan) founded.
Medical Faculty, University of Pressburg, moved to Fünfkirchen (Pécs) Hungary.
Fahraeus introduces erythrocyte-sedimentation test.
Gordon Holmes investigates semeiology of gunshot injuries of cerebellum.
Dandy evolves method of Röntgenography of the brain by injection of air into the spinal cord (ventriculography).
Sachs-Georgi introduces flocculation test in syphilis.
Gilman Thompson (New York) organizes clinic for functional reeducation of industrial and war cripples.
Chair of Industrial Hygiene established at Harvard University.
Kraepelin founds Psychiatric Institute (Deutsche Forschunginstitute für Psychiatrie) at Munich.
Soviet Government founds First Tuberculosis Institute at Moscow.
Institute for Experimental Endocrinology at Moscow.
Industrial Fatigue Research Board (London) established.
Maternity Center Association for Prenatal Hygiene (New York City) founded.
Clinical Institute for Post-Graduate Medical Training at Kiev (Ukraine).
Medico-Biological Institute at Leningrad (now Röntgenological and Radiological Institute).
State Optical Institute at Leningrad.
Institute for Study of the Brain and Psychic Activity at Leningrad (Bechtereff director).
State Central Institute for Physical Education at Moscow.
State Institute for Microbiology and Epidemiology at Saratov.
State Radiologic Institute of Czechoslovakian Republic at Prague.
Central Epidemic Prevention Bureau in Temple of Heaven (Peking).
Home for Investigation of Heating at Munich.
State Diagnostic and Serotherapeutic Institute at Ivanoice (Czechoslovakia).
British Orthopedic Association (London) founded.
Veterinary High-School at Brünn (Moravia).
Italian Society of Veterinary Medicine (Bologna) founded.
Odessa Pediatric Society founded.
Veterinary-Zoological Museum at Vitebsk.
Darwin Museum of Natural Science at Viatka.
Harkness Commonwealth Fund (New York) established.
Ephraim Fletcher Ingalls died.
Marfori finds that the lymphatic glands contain a depressor principle.
Major Strong, U. S. A. discovers the cause and describes pathology of trench fever.
Flexner describes the 1916 outbreak of epidemic encephalitis in Vienna.
Frey discovers quinidine.
Levin, Goodman and Pancoast establish relationship of streptococcus hemolyticus to influenza and pneumonia.
1918-19—Spanish influenza pandemic.
Pan-Ukrainian Academy of Science (Kiev) founded.
1918-24—Flexner, Amoss, and Webster investigate experimental epidemiology.
1918-25—State Institution for Experimental Therapy and Control of Biological Products at Moscow.
1919—Universities established at Brünn (Masaryk University), Cologne, Hamburg (March 31), Laibach (Llubljana, Jugoslavia), Posen (Poland), and Riga (Lativia, September 28).
University of Jurjev (Dorpat, 1632) becomes University of Tartu (Esthonia).
Medical Faculty, University of Astrakhan (South Russia), organized.
University of Pressburg becomes University of Bratislava (Czechoslovakia).
University of Klausenburg becomes Roumanian University at Cluj (October 1).
University of Wilna (Poland) reopened.
British Ministry of Health established (July 1).
Mellanby produces experimental rickets.
Huldschinsky demonstrates curative effect of sunlight (quartz lamp) on rickets.
Swedish University at Abo (Tartu), Finland, opened (January 15).
Kolle and Ritz treat experimental (rabbit) syphilis with Bismuth.
Dale and Laidlaw investigate histamin shock.
Weed and McKibben discover that intravenous injections of hypertonic solutions lower brain-pressure.
E. Mellanby treats experimental rickets with cod-liver oil.
Mercurocrome introduced (Young, White and Schwarz).
School of Hygiene and Public Health (Johns Hopkins University) opened at Baltimore.
Death-rate of New York City reduced from 28 (1869) to 12.93.
Sir James MacKenzie founds St. Andrews Institute for Clinical Research.
Württemburg State Bureau for Medical Investigation at Stuttgart.
Masaryk League against Tuberculosis (Prague) founded.
Czechoslovakian Congress for Tuberculosis organized (1923).
State Institute of Hygiene at Warsaw.
Boyce Thompson Institute for Plant Research at Yonkers, New York.
Institute for Theoretical and Applied Optics at Paris.
League of Red Cross Societies (Paris) founded.
Purkyne Neurological Society (Prague) founded.
Moscow Medical Institute founded.
Metchnikoff Institute for Infectious Diseases at Moscow.
State Institute for Social Hygiene at Moscow.

State Physio-Technical Röntgen Institute at Petrograd.
Chemico-Pharmaceutic Institute at Petrograd.
International Bureau of Labor at Geneva.
Psychiatric Clinic (Hamburg) opened.
Veterinary High-School (Petrograd) founded.
Société de pathologie végétale (Paris) founded.
Psychoanalytic Institute (Berlin) founded.
Institute for Sexual Science (Magnus Hirschfeld Stiftung) at Berlin. Zoöpark at Moscow (Russian Acclimatization Society, 1864).
Miles applies the term "pectenosis" to the contraction of the pecten band.
Schamberg demonstrates the efficacy of arsenical preparation and mercury in the treatment of syphilis.
Frieda Reeder introduces Nirvanol for the treatment of chorea.
Churchman advocates intravenous injection of gentian violet in septicemia.
1920—University of Warsaw (1869) becomes State University at Rostov-on-the-Don.
University of Odessa (1865) becomes Pedagogic High School or "INO" (Institut Narodni Osvity).
Medical Faculty, University of Odessa (1900) becomes State Medical Institute.
State University of the Soviet Republic of Armenia (Erwan) founded.
University of Kiev (1840) reorganized as Drahomanov Institute for Popular Culture.
Noguchi discovers Leprospira ictero-haemorrhagiae.
Widal defines hemoclasia.
Rubin insufflates Fallopian tubes in sterility.
J. B. Ayer introduces cisterna puncture (Wegeforth, Ayer, and Essick, 1919).
Sprunt and Evans envisage glandular fever as mononucleosis.
Meinicke introduces flocculation test.
Ravaut employs sodium thiosulphate in metallic poisoning (arsenic).
Association for Research in Nervous and Mental Diseases (New York) founded.
Union Internationale contre la tuberculose (Paris) organized.
National Health Council (United States) organized.
National Child Health Council (United States) organized.
East German Academy of Social Hygiene (Breslau) founded.
West German Academy of Social Hygiene (Dresden) founded.
Society of Czechoslovakian Physicians (Pressburg) founded.
German Pharmacological Society (Cologne) founded.
Société internationale d'histoire de la médecine (Paris) founded.
Institut international d'anthropologie (Paris) founded.
Institute for Albumen Research (Hamburg) founded.
Russian Medical Society (Medizinskoe Obshestvo) in Berlin.
State Institute for Medical Sciences (Psycho-neurological Institute of 1908) at Leningrad.
State Scientific Public Health Institution at Moscow.
Sanitary-Hygienic Institute at Moscow.
State Bacteriological Institute "Immunity" (1912) at Moscow.
Institute for Tropical Diseases at Moscow.
State Psycho-Neurological Institute at Moscow.
State Institute of Psychiatry and Orthopedics at Moscow.
Pasteur Museum at Strassburg.
Institute for History and Philosophy of Medicine (University of Cracow) founded.
Society for History and Literature of Veterinary Medicine (Berlin) founded.
Society of School and District Physicians (Madgeburg) founded.
Russian Eugenic Society (Moscow) founded.
Russian Protistological Society (Moscow) founded.
Chair of oto-rhino-laryngology established at Montpelier.
Institut Pasteur hellenique (Athens) opened.
State Institute of Dentistry (Warsaw) founded.
University Library, Odessa (1865), becomes Central Scientific Library.
Württemburg State Bureau for Veterinary Investigation at Stuttgart.
Odessa Surgical Society founded.
Accademia Leonardo da Vinci (Naples) founded.
Société française d'ethnographie (Paris) founded.
Institut vétérinaire exotique (Alfort) founded.
Haeckel Museum at Jena.
Bacteriological Laboratory at St. Louis becomes Biological (Pasteur) Institute at Dakar (Senegal).
Institute for Investigation of Industrial Diseases and Accidents at Dortmund (Prussia).
1921—Septcentenary of University of Montpellier.
State University of White Russia (Minsk) founded.
Ukrainian University transferred from Vienna to Prague.
Medical Faculty, University of Charkov (1804) becomes Medical Institute.
University of Malto (1769) reorganized.
University of Kolozvár transferred to Szeged.
Rabindranath Tagore opens University at Santiniketan, Bengal.
Banting and Best isolate insulin.
Rio Hortega discovers microglia and oligodendroglia.
Langley publishes book on autonomic system.
Tonkah Kee founds University of Amoy (China).
A. F. Hess treats rickets by exposure to sunlight.
General use of iodine as an antiseptic (Pregl's solution).
Quarantine Station, New York City, turned over to United States Public Health Service (March 1).
New York Health Department operates 68 infant milk depots.
Industrial Health Service Bureau (Chicago) opened.
Harvard School of Public Health (Boston) founded.
Correspondence Committee on Social Insurance (International Bureau of Labor) at Geneva.
German National Station for Prevention of Alcoholism at Berlin.
State Hygienic Institute at Posen transferred to Landsberg (Prussia).
National Institute of Industrial Psychology at London.
Lichttechnisches Institut at Karlsruhe (Baden).
Institut Behring (for Experimental Therapy) at Marburg.
Personnel Research Federation (New York City) organized.
Institute of Microbiology at Saarbrücken (Saar District).
Italian Society for Study of Sexual Questions at Rome.
Pharmaceutic Institute at Charkov (Ukraine).
Swiss Society of History of Medicine (Zürich) founded.
Ukrainian State Psychoneurological Institute at Charkov.
Biochemical Institute of the Commissariat of Public Health (Narkomzarav) at Moscow.
Institute for Heating Technics at Moscow.
Institute for Medico-Legal and Mental Tests at Moscow.
Psychoanalytic Institute and Laboratory at Moscow.
Sanitary Institute (1889) at Moscow.
State Microbiological Institute at Moscow.
State Venereological Institute at Moscow.
Chemico-Pharmaceutic Institute at Odessa.
Australian National Research Council (Sydney) organized.
Eugenics Society (New Haven) founded.
Society for Racial Hygiene (Kiel) founded.
Royal Botanic Gardens at Peradeniya (Ceylon).
Instituto experimental de veterinaria at Rio de Janeiro.
Psycho-pedagogic Laboratory at Amsterdam.
Gorgas Memorial Institute of Tropical and Preventive Medicine (Chicago) founded.
Society of History of Science and Medicine (Munich) founded.
Schon suggests that Vitamin A is associated with the chlorophyll contents of plants.
Otto Warburg devises charcoal model to illustrate cell-respiration.
Gowland Hopkins isolates glutathione.
Hess and Steenbock discover Vitamin D.
Dr. M. Eitingon founded the first public psycho-analytic clinic.
1921-5—Bacteriological and Serum Institute for Anhalt Area at Dessau.
1921-6—R. L. Kahn introduces serum test for syphilis.
1922—Petrograd becomes Leningrad.
Russian University in Prague founded.
State University at Saratov founded.
Medical Faculty, University of Astrakhan, becomes State Medical Lunacharski Institute.
Finnish University at Tartu (Abo) opened (June 27).
University of Kovno (Kaunas) Lithuania, founded.
Blair Bell revives lead treatment for cancer.

Schutz and Versé describe agranulocytosis.
W. L. Keller improves operation of pleurectomy for empyema.
H. Stieve investigates inhibitory effects of starvation and overfeeding upon sexual capacity.
Sampson investigates ovarian endometrioma.
Piper employs mercurochrome in puerperal sepsis.
Correspondence Committee on Industrial Hygiene (International Bureau of Labor) at Geneva.
German Society for Industrial Hygiene (Frankfurt-am-Main) founded.
Liverpool Cancer Research.
State Institute for Racial Biology at Upsala.
Institute for History of Science at Heidelberg.
Kolloid-Gesellschaft (Leipzig) founded.
German Institute for Scientific Pedagogics at Munster.
Institut für Jugendkunde at Magdeburg.
State Institute for Post-graduate Medical Instruction (Clinical Institute, 1885) at Leningrad.
State Radium Institute at Leningrad.
House of the Learned (Dom Uchenych) at Moscow.
State Institute for Skin and Venereal Diseases (Polyclinic, 1917) at Odessa.
Biological Institute and Biostation (University of Perm) founded.
Pan-Russian Pathological Society (Moscow) organized.
Ose Society for Jewish Hygiene (Leningrad, 1912) moved to Berlin.
Société de gastro-enterologie (Paris) founded.
New England Heart Association (Boston) founded.
Institut Pasteur at Brazaville (Congo).
American Society of Clinical Pathologists (Denver, Colorado) founded.
Animal Diseases Research Association of Scotland (Edinburg) founded.
Biological Institute at Guadalajara (Mexico).
Evans, Mattill, and Sure discover Vitamin E.
Jansen isolates Vitamin B1.
Centenary of birth of Louis Pasteur (December 27).
Bayer Chemical Company introduces "Bayer 205."
Gwathmey and Greenough advocate magnesium sulphate in combination with nitrous oxide or ether as anesthesia.
Haberer introduces a new type of gastro-duedenostomy.
Crile offers a physico-chemical basis for the phenomena of shock.
Young describes his technic of perineal prostatectomy.
Banting discovers insulin.
1923—Royal University of Milan, founded (September 30).
Health Organization of Leagne of Nations at Geneva.
George and Gladys Dick discover hemolytic streptococcus of scarlatina and devise susceptibility test.
Graham and Cole introduce cholecystography (examination of gallbladder by X-rays).
Luckhardt discovers anesthetic properties of ethelene gas.
Dandy evolves method of localizing brain tumors by ventricular estimation.
Gwathmey introduces synergistic anesthesia.
Ross Institute and Hospital for Tropical Diseases (London) opened.
International Education Board (Rockefeller Foundation) organized.
Institute for Racial and Constitutional Anthropology at Vienna.
Epidemiological Institute at Zagreb (Jugoslavia).
State Scientific Institute for Maternity and Infant Welfare at Moscow.
Scientific Institute for Microbiological Investigation at Moscow.
Obuch Institute for Investigation of Industrial Diseases at Moscow.
Cabinet for Study of Criminal Personality and Crime at Moscow.
Pharmaceutic Institute at Oslo (Norway).
Alfonso XIII Institute for Cancer Research at Madrid.
Orthopedic Hospital and Institute at Madrid.
Instituto Rubio (for training lay nurses) at Madrid.
Swiss Institute for Physiology of High Altitudes and Tuberculosis at Davos.
Cancer Institute at Buenos Aires (Argentina).
Parapsychic Institute at Vienna.
Maison des spirites at Paris.
Viennese Society for Röntgenology founded.
Czechoslovakian Biological Society (Brünn) founded.
Eubiotic-Hygienic Society of Czechoslovakia (Pressburg) founded.
Society of Russian Physicians in Czechoslovakia (Prague) founded.
Society of Ukrainian Physicians in Zechoslovakia (Prague) founded.
Latvian Scientific Society (Riga) founded.
Society for Advancement of Applied Psychology (Berlin) organized.
Prehistoric Museum at Eyzies-de-Tayac (Dordogne).
Maudsley Hospital for Nervous Diseases (London) established.
Cleiz and Perlis discover the anesthetic Somnifene.
Finsterer advocates local anesthesia in gastric surgery.
Shoule and Moment introduce amytal.
W. F. Lorenz, A. S. Lovenhart, W. J. Blackwen, and F. J. Hodges, use tryparsamid in treatment of syphilis.
Nobel Prize for 1922 to F. G. Banting and J. J. R. McLoed, of Toronto for development of insulin.
The American Medical Association began publication of Hygeia.
1923-4—Libman and Sacks describe atypical verrucous endocarditis.
1924—Calmette vaccinates children against tuberculosis with B.C.G. (Bacillus Calmette-Guérin: non-virulent bovine culture).
Gustav Magnus publishes monograph on postural reflexes.
Steenbock and Black treat rickets by irradiating food with ultraviolet light.
Marriott employs insulin-fattening for impoverished nutrition in infants.
International Society of Medical Officers of Health (Geneva) organized.
Italian League against Venereal Diseases (Rome) organized.
Liga español contra el cancer (Madrid) organized.
Russian Society of Endocrinology founded.
Society for Prevention of Venereal Diseases (Pressburg, Czechoslovakia) founded.
Polish Society for History and Philosophy of Medicine (Posen) founded (Archiv, 1925).
Czechoslovakian Society of Röntgenologists and Radiologists (Prague) founded.
Northwestern German Society of Internal Medicine (Rostock) founded.
Society of Academic Teachers of Medical Röntgenology (Vienna) founded.
Society of Psychiatrists (Leningrad) reorganized.
Pedagogic Institute at Leipzig.
Institute for Investigation of Psychology of Religions at Vienna.
Institute for Social Medicine at Zagreb (Jugoslavia).
Timiriaseff State Biological Institute at Moscow.
State Institute for Scientific Pedagogics at Moscow.
State Central Museum of Ethnology at Moscow.
Institute for Comparative Culture at Oslo (Norway).
American Society of Parasitologists (Baltimore) founded.
Werner Siemens Institute for Röntgenology at Berlin.
Incunabula Society (Wiegendruckgesellschaft) at Berlin.
History of Science Society (United States) founded at Boston.
American Society of Plant Physiologists (Chicago) founded.
Medical Society (Denver, Colorado) founded.
Braasch and Carman introduce renal flouroscopy at the operating table.
Plummer & Boothby report reduction of pre-operative mortality rate in exophthalmic goitre following Lugol's solution.
Harris suggests the term "hyperinsulinism."
Felton produces his antipneumococcus serum against pneumococcal types I and II.
Barre and Masson of France describe the glomus tumor.
Heyd announces the syndrome called "liver-death."
1925—Hebrew University of Jerusalem opened (April 1).
University of Bari (Italy) opened.
Hess, Weinstock, Steenbock, and Black demonstrate antirachitic properties of cholesterol and phytostererol.
O. Foerster investigates hyperventilation-epilepsy.
Whipple and Robschat-Robbins treat experimental anemia with raw liver.

International Health Board (New York) finances State Hygienic Institute of Czechoslovakia (Prague).
Institute for Biological Research (Johns Hopkins University) at Baltimore.
Imperial German Academy of Natural Sciences (1652) at Halle.
Radiologic Institute (Foundation Bergonié) at Paris.
British Social Hygiene Council (London) organized (founded 1914).
Sir Donald Ross opens British Mosquito Control Institute at Hayling Island.
Foederatio bio-climatica organized at Davos.
Society of Friends of History of Medicine (Lemberg) founded.
Confraternity for Psychology of Physical Exercise (Berlin) founded.
German Society for Disorders of the Voice and Speech (Berlin) founded.
Eastern Bureau (Health Section, League of Nations) at Singapore.
Hygienic Institute of Czechoslovakian Republic at Prague.
Ukrainian Biological Institute at Charkov.
International Union of Students (Geneva) organized.
Society of Physicians of Baltic Sea Bathng Resorts (Swinemünde) founded.
Museum of Gymnastics (Berlin).
Public Health Act (England).
Town-planning Act (England).
German Institute of Gynecology at Berlin.
Dr. Howard Kelly announced the use of fine electric needles for surgery.
Edgar Allen and J. P. Pratt discover the female sex hormone.
Stein makes apparent cures of encephalitis with serum of convalescents.
Cotte relieves pain of uterne contraction in dysmenorrhea by resectioning the superior hypogastric plexus.
McDonald reports a depressor substance in liver extracts.
Fridericia and Holm discover relationship between night blindness and Vitamin A deficiency.
Willett of London introduces his forceps.
1926—Minor and Murphy introduce raw liver diet in pernicious anemia.
Vogel introduces ninhydrin (flocculation) test for pregnancy.
C. R. Harrington effects synthesis of thyroxine.
Collip isolates parathyroid hormone.
Birkhaug investigates serology and serotherapy of erysipelas.
Ferry and Fisher investigate serology of measles.
Raymond Pearl obtains logistic curve for population growth.
W. H. Welch appointed professor of history of medicine in the Johns Hopkins University.
School of Hygiene, Johns Hopkins University (1916), officially opened.
School of Tropical Medicine (University of Porto Rico) opened at San Juan (October 1).
Society of British Neurological Surgeons (London) founded.
Benacheion Phythopathological Institute (Athens) opened.
Royal Veterinary Institute at Perugia.
Hygienic Exhibition (Gesolei) at Düsseldorf.
Hygienic Academy at Dresden.
Ukrainian Scientific Society in Berlin founded.
Scientific Institute for Investigation of Ukrainian water-supply at Kiev.
University of Agra (United Provinces, India) founded.
Indo-Chinese School of Medicine and Pharmacy at Hanoi.
Wilder and Associates establish the clinical entity of spontaneous hyperinsulinism.
Jansen & Donath isolate Vitamin B1 and name it Aneurin.
Hector suggests insulin in diphtheria.
McGee succeeds in extracting the male sex hormone from the testis.
Eicholz employs avertin in anesthesia.
Maude Slye proves that certain types of cancer susceptibility and immunity can be inherited by mice.
1927—Noguchi shows causal relation of Bartonella bacilliformis to verruga and Oroya fever.
Ruth Tunnicliff introduces serum against measles.
Centenary of birth of Lord Lister (April 5).
Ronald Ross Gate of Commemoration unveiled at Calcutta (January 7).
Thomas Henry Simpson Memorial Institute for Medical Research (Ann Arbor) opened (February 16).
Dunn School of Pathology (Oxford) opened (March 11).
Institute of Optics (Paris) opened (March 17).
School of Hygiene (University of Toronto) opened (June 9).
Squier Neurological Clinic opened May 7th.
Pathological Laboratory and Research Institute (City of London Hospital for Diseases of Heart and Lungs) opened (July 19).
Museum of Gynecology at Berlin.
Ukrainian Organo-Therapeutic Institute at Charkov.
Ligue belge contre le rhumatisme (Antwerp) organized.
German Society for Prevention of Rheumatism (Berlin) founded.
Institute for Maternity and Infant-Welfare at Kiev (Ukraine).
Psycho-Neurological Institute at Kiev.
Biological Society at Concepción (Chile) founded.
Centenary of American Journal of Medical Sciences (Philadelphia).
Legislation on abortion in Germany (May 14).
Bureau of Chemistry (United States Department of Agriculture) abolished (June 30); end of food inspection in United States.
German Food Law (October 1).
German Law abolishing controlled prostitution (October 1).
Lindberg crosses Atlantic in aeroplane.
United States Federal Caustic Poison Bill (Lye Bill) passed.
Brauer Institute (Hamburg) becomes Tuberculosis Institute.
Goldberger and associates discover that pellagra follows a lack of Vitamin B (pp. factor).
Aschheim-Zondek describe a hormone pregnancy test.
Cohn and Minot produce a liver fraction free from protein or polypeptide.
Wilder demonstrates a pathological basis for hypoglycemia due to hyperinsulinism.
The Nobel Prize in Medicine awarded Prof. Julius Wagner Jauregg of Vienna, for work in treatment of general paralysis of the insane by malaria inoculation.
1928—Bicentenary of birth of John Hunter.
Tercentenary of publication of Harvey's De Motu Cardis.
Noguchi discovers pathogen of trachoma.
New Presbyterian Hospital (New York Medical Center) opened, (March 17).
Squier Urological Clinic and Harkness Pavilion (New York Medical Center) opened (March 20).
Centenary of Boston Medical and Surgical Journal, Glasgow Medical Journal, and Gazette des hôpitaux (Paris).
Deutsche Forschungsanstalt für Psychiatrie (Munich) opened (June 13).
Swick and Lichtenberg produce uroselectan.
Shattauck suggests that alcoholic polyneuritis is due to Vitamin D deficiency .
Blackfan and Hamilton treat urea in children with intravenous magnesium sulphate.
Castle and associates describe the role of achylia gastrica in the etiology of pernicious anemia.
Moorhead and Abrahamson describe the new disease thrombophlebitis migraine.
Szent-Gyorgyi obtains hexuronic acid (cevitamic acid) from the glands of oxen.
Paul B. White effects first surgical cure of adhesive pericarditis.
Goldberger completes his work on the study of pellagra.
1929—Aub and associates discover that hyperthyroidism is associated with the production of negative calcium balance.
Swingle and Pfiffner isolate the active principle cortin from the suprarenal cortex.
Kaznelson establishes achlorhydric anemia as a clinical entity.
Derby and associates develop a technic for study of dark adaptation.
Kalk devises a laparoscope for orientation in abdominal cavity.
Matussis discovers a new method of administering violet rays in treatment of lupus vulgaris.
Brand and associates observe that ingestion of glycin in muscular dystrophy is followed by an increase of creatinuria.
Lucas and Henderson discover cyclopropane.
Drury and Szent-Gyorgi observe that adenylic acid and adenosin cause a fall of blood pressure.

Loeb and Bassett and Aron demonstrate the influence of anterior lobe extracts upon the epithelium of the thyroid vesicles.

Edward A. Doisy, C. D. Veler and S. Thayer isolate in pure Crystalline form, the female sex hormone.

1930—President Hoover calls White House Conference on Child Health and Protection.

Higgins and Bates devise a method for determination of basal metabolism in children.

Warren and Scott discover a new serological type of salmonella.

Rabinowitch describes a high carbohydrate-low-calorie diet for diabetes mellitus.

Harris introduces his operation of suprapubic prostatectomy with closure.

W. S. Baer revives the use of maggot treatment of wounds.

Bleckwenn introduces sodium barbital-sodium phenobarbital narcosis for acute psychoses.

Cannon introduces the hormone sympathin.

Howard Jones evolves a technic for spinal percaine anesthesia.

W. C. Corson and G. F. Irwin and I. A. Phillips showed Vitamin D an aid in clotting of blood.

Nobel Prize for 1930 awarded to Landsteiner for discovery of the four types of human blood.

Philip Drinker and L. A. Shaw (Harvard University) invent the artificial lung.

1931—W. H. Park demonstrates methods of evolving 27 additional specific types of pneumonia.

Gutierrez discovers the clinical entity "horseshoe kidney disease."

Crist and Dye demonstrate the parallelism between chlorophyll and Vitamin A content.

Moore discovers large quantities of Vitamin A in the liver following ingestion of foods containing carotene.

Butenandt extracts androsterone from the male urine.

Eley and Clifford employ protein sensitization in hemophilia.

Weese produces sodium evipan.

Nissen resects successfully the entire left lung.

International standard of Vitamin D adapted by Health Organ. League of Nations.

Dr. William L. Gould finds thiosulphate remedy for ringworm of the feet.

Dr. H. A. Shonle announces new anesthetic from alcohol, barbituric acid and amyl.

Dr. C. D. Leake discovers a new general anesthetic related to ether and ethylene.

Dr. Frederick B. Blinn finds viosterol an effective treatment for radium poisoning.

Dr. Lauriston Taylor designs apparatus to measure the intensity of X-ray doses.

1932—Cushing discovers that pituitrin or pilocarpine injected into the ventricle causes activity of the entre cranial portion of the nervous system.

Lewis and Pickering describe a method of testing vasodilatation by heating the body.

Johnson devises a finger plethysmograph.

Maddock and Collier demonstrate peripheral vasoconstriction from products absorbed from tobacco smoke.

McCarthy introduces his resectoscope in prostatic obstruction.

M. Bleicher describes an anatomic technic for suprarenal tumors.

Barringer advocates suprapubic cystotomy and implantation of radon seeds in carcinoma of the bladder.

Wohlwill demonstrates the anatomy of Bang's disease.

Hallevorden demonstrates how dissolved disease substances may reach the brain by diffusion, according to colloido-chemical laws.

De Wolf and Van Cleve summarize the present knowledge of Lympho-granuloma inguinale (the fourth venereal disease).

Rankin and Major demonstrate that hyperplastic tuberculosis of the large bowel is a surgical problem.

Lahey applies successfully Mikulicz's method of closure to resection of the cecum and ascending colon.

Vaughn and Hunter cure megalocytic hyperchromic anemia with marmite (vegex).

Lucy Wells uses marmite successfully in tropical macrocytic anemia.

Charlton employs Reticulin in anemia.

Peck injects snake venom in hemorrhagic diathesis.

Davis and associates locate the afferent spinal sympathetic pathway of the vomiting reflex in the anterolateral tracts of the spinal cord.

C. C. Cody, Jr. finds that vitamin B deficiency is identified with a nasal syndrome.

C. Jackson describes 24 different varieties of benign tumors of the trachea and bronchi.

The American Board of Dermatology and Syphilology is established.

Morris and associates discover the hormone addisin in normal gastric juice.

Wilkinson isolates the active principle called haemopoietin.

Biddle and associates discover a lactogenic hypophyseal hormone.

Caulk describes his punch operation in transurethral prostatectomy.

U. S. Public Health Service announces lowest death rate on record for 1931 and first half of 1932.

Wolf and Schindler perfect the flexible gastroscope.

Cushing calls attention to the syndrome named after him.

First experimental work with protonsil.

1933—Pantothenic acid (10th vitamin) discovered by R. T. Williams.

Mark suggests medium for intravenous urography in diagnosis of ruptured bladder.

Stiles and associates first to employ cyclopropane anesthesia clinically.

M. Bruker treats congestive rhinitis with sclerosing solutions successfully.

Madsen, Sauer and Krueger simultaneously develop a whooping cough vaccine.

Blumgart and associates announce total ablation of normal thyroid in heart failure and angina pectoris.

Potzl of Vienna induces hypoglycemic state in insular shock in treatment of schizophrenia.

Collip and associates prepare extracts of the growth hormone from the anterior lobes of the pituitary glands of oxen.

Foerster gives first report of remarkable clinical qualities of protonsil.

Dr. Lee Foshay and Prof. W. B. Wherry produce serum against tuleremia.

Dr. S. M. Rosenthal discovers formaldehydesulfoxylate as an antidote for bicloride of mercury.

Szent-Gyorgy and King discover Vitamin C.

Reichstein, Grussner and Oppenauer, Hirst and Haworth synthetize Vitamin C.

1933-4—Kuhn and Karrer, Kuhn, Gyorgy, Wagner-Jauregg and Davis, discover Vitamin B2 (G) (Riboflavin).

1934—Stewart removes infected area in osteomyelitis and packs wound with vaseline gauze.

Ruzicka and associates prepare androsterone from cholesterol.

Haldeman and Moore announce that an excess of calcium and phosphorus favor union in delayed healing of fractures.

Hagedorn of Denmark discovers protamine insulin.

Barach introduces helium as a therapeutic gas.

Dam discovers that Vitamin D deficiency produced a bleeding diathesis.

Gyorgy identifies and makes Vitamin B6.

Dr. A. R. Dafoe delivers the Dionne quintuplets.

Dr. E. C. Kendall discovers cortin.

1935—Lahey describes an operation procedure for the elimination of trachea constriction due to thyroiditis.

Macht discovers the analgesic properties of cobra venom.

Dam of Copenhagen discovers Vitamin K.

Dreyer and Reed treat arthritis with massive doses of Vitamin D.

Domagk announces the discovery of protonsil (sulphanilamide).

Laquerur and associates isolate testosterone from bull testis tissue.

Coryllos discusses the indications for surgical tuberculosis.

Tabern and Voluviler introduce new sulfur-containing barbituric anesthetics.

Rosenheim uses mandelic acid in urinary tract infections.

U. S. Army Regulations state that a history of paroxysmal tachycardia is a disqualification for flying.

Dudley and Moir of London, Adair and coworkers of Chicago, and Thompson of Baltimore, simultaneously isolate ergonovine used in treatment of postpartum hemorrhage.
Drs. Paul D. White and E. D. Churchill relieve Pick's disease by surgical removal of part of the pericardium.
A. C. Ivy announces new hormone, enterogastrone.
Dr. A. Ashley Weech is first to use protonsil in the United States.
1936—Colebrook and Kenney successfully employ protonsil in puerperal fever.
Churchill contributes to the knowledge of hyperparathyroidism.
Williams and associates synthetize crystalline B1.
Sahyun develops crystalline insulin.
R. A. Peters demonstrates that Vitamin B is composed of 6 entities.
Miller and associates introduce a number of new thio-barbituric and hypnotics.
1937—Long and Bliss confirm the findings of Colebrook and Kenney in their use of the derivative prontylin.
Elvehjem cures black tongue in dogs with nicotinic acid.
Kock lists over 30 androgenic substances.
Harnapp of Germany originates the use of Vitamin D-Stoss in rickets.
Kerr devises the lower segment operation in obstetrics.
Dr. Gene Broadhurst isolates the virus of measles.
1938—Warner and co-workers first report the beneficial effects of Vitamin K and bile salts on bleeding tendency in obstructive jaundice.
Spies and associates cure human pellagra with nicotinic acid.
Whitby demonstrates the effectiveness of sulfapyridine in pneumonia.
Weiss employs standardized electrocardiographic leads in avitaminosis B1.
Inhoffen and Hohlweg discover pregneninonol for use in treatment of meno-metrorrhagia.
Geist and associates report clinical improvement of uterine bleeding following testosterone propionate.
Dodds and co-workers describe the preparation and estrogenic properties of Stilbestrol.
Butt and associates of the Mayo Clinic report excellent results with Vitamin K and bile in hemorrhagic diathesis of obstructive jaundice.
1939—Foerschler introduces petein vaccine in whooping cough.
Nahun discovers that the U-wave in the electrocardiogram is part of the ventricular complex.
Waddell and Guerry find Vitamin A effective in controlling bleeding in the newly born.
Day reports marked relief of benign prostatic hypertrophy following testosterone propionate.
Holmes isolates Vitamin A in practical pure form.
Dr. Boothby develops a new oxygen mask.
Charles Horace Mayo died (May 26).
William James Mayo died (July 28).
Harvey Cushing, famous brain specialist, died.
1940—Merck & Co. and the University of Texas announce jointly the synthesis of pantothenic acid, the 10th vitamin.
Peral of Montefiore Hospital, New York, announces success in the prevention of surgical shock with the cortical hormone de-soxycorticosterone acetate.

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"Some systematization of payment to physicians for medical care and for the prevention of disease can only be of benefit to the medical profession. We would be paid for work that today we largely do gratuitously; we would be enabled to offer our patients better and more complete medical services. If we blindly oppose measures that are designed to bring medical care to those who need it and to align the profession of medicine with the needs of the country, we shall have no voice in guiding the proper development of these facilities.

. . . Physicians cannot restore the good old days of private enterprise. To save themselves and to save the high aims for which they have striven for over 2,000 years they must join with the community in adapting medical practice to the structure and needs of society." —Ernest P. Boas, M. D., speaking before the Medical Society of the County of New York.

Blood-stream invasion by tubercle bacilli may take place at any stage of tuberculosis and at any age; following the primary infection; during the evolution of the disease or as a terminal event. The stage of the disease influences considerably the incidence of implantations in the various organs of the body; the age of the patient plays a minor role. Chronic forms of hemotogenous tuberculosis are uncommon in children only because, as a rule, they do not live long enough for the protracted manifestations of the disease to develop. When tubercle bacilli invade the blood-stream there may result a generalized miliary tuberculosis that overwhelms the patient in a few months or there may be a complete absence of symptoms or any variation between these two extremes. The numbers and virulence of the tubercle bacilli, the frequency of invasion, the portal of entry and the sensitivity of the body to tuberculotoxins will determine the issue.—Tubin, Eli H., Amer. Rev. of Tuber., 1939, 39.

OPTIMIST AND PESSIMIST

The optimist says: "Go ahead, there's not a chance to lose;
The time is now, and, on the dead, you really can't refuse."
The pessimist says: "Wait a bit, and look before you leap;
If there is any good in it, the chance will surely keep."
The optimist sees but the sun, the pessimist the rain,
The optimist prepares for fun, the pessimist for pain.
The optimist pulls forward and the pessimist pulls back,
The one throws wide the throttle and the other sands the track.
This world would be monotonous if folks were all the same,
With no one round to raise a fuss, 'twould be a tiresome game.
The optimist with his glad song, the pessimist so blue:
We really couldn't get along unless we had the two.

Tuberculosis and Tonsils—Sixty-one individuals from whom tuberculous tonsils or adenoids had been removed in the years between 1912 and 1920 were investigated in 1935 at the Johns Hopkins Hospital. Of the 45 who were less than 14 years of age when the operation took place but one had died from tuberculosis and 42 were alive and well. Of 16 cases who were past the age of 14 more than half had suffered from pulmonary tuberculosis of the adult type. Incomplete examinations at the time of operation made it impossible to determine in how many cases the disease was already present in this older group. What did seem apparent was that after the removal of the tuberculous focus, the children under 14 rarely showed progressive tuberculosis of the adult type.—Bordley, J., III, and Baylor, John W., Bull. Johns Hopkins Hosp., 1938, 63.

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300 *X-ray Examinations per Hour*—A new method of x-raying the chests of large groups cheaply and quickly has been developed in Germany. It consists of photographing the fluoroscopic image on motion picture film. When developed, the strip of film is projected on a screen for interpretation. By this method two physicians, assisted by a crew of 10 men, examined at the rate of 300 per hour, more than 10,000 men during a Nazi party celebration at Nüremberg. The device is not a substitute for the standard x-ray technique but is a means of "screening" and it promises the possibility of examining the whole nation. Holfelder, H., and Berner, F., Muenchen. Med. Wchnschr., 1938, 47.

"The defect of this (Wagner National Health) Bill is that it has tried to avoid the most important part in the question, and that is health insurance. Senator Wagner as made several statements. Before the doctors he states that there is no health insurance here. I can tell you that you really could have health insurance under this bill. I don't think these tactics will do any good. There is no way of fooling the American Medical Association . . . I think the Senator's bill was drafted largely to ensnare the doctors."—Abraham Epstein, Executive Secretary, American Association for Social Security, testifying before Senate Committee on Labor.

Marriages

BERNARD E. BOLOTOFF, Rockford, Ill., to Miss Mary Younkus in East Chicago, Ind., in March.

ROBERT M. GOLDSTEIN, Chicago, to Miss Eileen Mandl of Tuckahoe, N. Y., March 27.

Personals

Dr. Lee C. Gatewood, Chicago, discussed "Dysentery Including Amebic Dysentery" before the Madison County Medical Society in Highland, May 3.

Dr. Joseph L. Baer, Chicago, discussed "Prolonged Labor" before the Knox County Medical Society, April 4.

Dr. Thomas Addis, San Francisco, addressed the Springfield Medical Club, April 23, on "Treatment of Glomerular Nephritis."

Dr. Manuel E. Lichtenstein, Chicago, addressed the McLean County Medical Society in Bloomington, April 9, on "The Basis for Therapy in Intestinal Obstruction."

Dr. C. B. Reed addressed the Will-Grundy County Medical Society on May 3, subject, "Causes and Treatment of Prolonged Labor."

Dr. Arthur F. Abt spoke on "Pros and Cons of Sulfanilamide" before the St. Clair County Medical Society on May 2.

Dr. John B. O'Donoghue gave a paper before the Henry County Medical Society, May 2, on "Gall Bladder Surgery."

Dr. Frederick Rehm Schmidt spoke to the Henry County Medical Society on May 2 on "Common Skin Diseases" and also to the Woman's Auxiliary of the Society on "Cosmetics and Care of the Skin."

Dr. Italo Volini addressed the meeting of the Iowa and Illinois Central District Medical Association at Davenport, Iowa, May 16.

Dr. Joseph K. Calvin addressed the Medical Society of the State of New York, Section on Pediatrics, on May 8. Subject, "Tetanus, Its Prevention and Treatment."

Dr. M. Herbert Barker spoke at the Seventh Annual Post Graduate Conference at Wilkes-Barre, Pennsylvania, on April 25. Subject, "The Ionic Contro of Edema."

Dr. Leon Unger addressed the medical staff of the St. Margaret's Hospital in Hammond, Indiana, on May 7, 1940. The title of his talk was "Allergy in General Practice."

Dr. Lorin D. Whittaker, Peoria, discussed "Certain Aspects of Thyroid Disease" before the Peoria Medical Society, April 16.

Alumni of the Division of Biological Sciences, University of Chicago, will hold their annual assembly June 7.

Alumni of Rush Medical College will hold a reunion at the college June 6-7. The program includes symposiums on endocrines, chemother-

apy, abdominal surgery, gastro-enterology, cardiovascular renal disease and traumatic surgery.

Dr. Friedrich P. E. Bornstein, Rochester, among others, addressed the Sangamon County Medical Society in Springfield, May 2, on "Pharmacology of the Myocardium." Dr. Ralph H. Major, Kansas City, Mo., addressed the society, April 4, on "Therapy of Endocarditis Lenta."

Dr. Samuel M. Feinberg was cheduled to hold a clinic on "Allergy" at the Eleventh Indiana Councilor District Medical Association at Huntington, on May 15.

Dr. George W. Post spoke at the Eighty-third Annual Session of the Missouri State Medical Association at Joplin on May 1. Subject, "The Importance of Water Balance and the Electrolytes in the Preoperative and Postoperative Care of Surgical Patients."

Dr. Budd C. Corbus addressed the Central Social Hygiene Clinic, Department of Health, City of New York, on April 15. The title of the paper was "Modern Trends in the Treatment of Gonorrhea." Kodachrome slides showing the cutaneous test for gonorrhea was a feature of the address.

Dr. Ralph B. Bettman addressed the Macon County Medical Society, at Decatur, Illinois, on April 16, on "Recent Development of Gall Bladder Surgery."

This issue of the JOURNAL carries the portrait of Dr. J. S. Templeton, president of the Illinois State Medical Society, as a supplement.

Dr. Arthur F. Abt presented a paper before the St. Clair County Medical Society, East St. Louis, Illinois, on May 2, his subject was "Dental Problems in Children."

Dr. Howard L. Alt was invited to address the Milwaukee Academy of Medicine, May 21, on "Differential Diagnosis and Treatment of the Anemias."

Dr. Herman L. Kretschmer spoke on "Kidney Tumors" on the Eighth Annual Clinic Day at St. Anthony's Hospital, Rockford, Illinois, on May 8.

News Notes

—The new outpatient clinics of the Cook County Hospital group were dedicated, April 19, to the memory of the late Dr. Bernard M. Fantus, director of therapeutics at the county hospital and creator of the "blood bank" for quick transfusions.

—The Institute of Medicine of Chicago announces that the 1939 award of the Joseph A. Capps Prize has been divided between Dr. Charles Fisher for his investigation on "Diabetes Insipidus and the Neurohormonal Control of Water Balance: A Contribution to the Structure and Function of the Hypothalamicohypophysial System," and Dr. Bernard G. Sarnat for his work on "The Teeth as Permanent Chronologic Recorders of Systemic Disease: A Clinical and Experimental Study of Enamel Hypoplasia."

—The thirty-third anniversary of the Ravenswood Hospital was observed at a dinner at the North Shore Country Club May 8. Two of the hospital's founders, Drs. George N. Bussey and George De Tarnowsky, were guests of honor at the dinner. They are still active members of the staff. In the morning the obstetric and gynecologic section of the hospital held a special commemorative program. At this meeting Dr. Bussey, Dr. De Tarnowsky, Dr. Wallace F. Grosvenor and Dr. Clark A. Buswell were guests.

—The Ogle County Medical Society held a meeting April 25, 1940 in Oregon at 7 P. M.

—Superintendent H. R. Lissack, Rochelle, Illinois gave a very instructive lecture.

—"The Professional Man and Public Relations," Mr. Lissack opened the door and invited the doctors to take a look at themselves as seen by the Public. His logical and realistic approach to the problem in the minds of most medical men was illuminating.

—Anton J. Carlson, Ph.D., professor and chairman of the department of physiology, Division of Biological Sciences, University of Chicago, will become emeritus at the end of the current year, the university announces. Since 1929 Dr. Carlson has held a Frank P. Hixon Distinguished Service Professorship. This title will now go to Fred C. Koch, Ph.D., professor and chairman of the department of biochemistry at the university. No successor to Dr. Carlson in the department of physiology has been announced. Born in Sweden in 1875, Dr. Carlson came to the United States at the age of 16 and received his doctor's degree at Stanford Uni-

versity in 1902. In 1904 he joined the faculty of the University of Chicago, becoming professor in 1914 and chairman of the department in 1916. Dr. Koch was born in Chicago in 1876. He took his master's degree at the University of Illinois and that of doctor of philosophy at Chicago in 1912, becoming professor in 1924. He is known for his studies in the field of hormones, enzymes and vitamins.

—In accordance with recently enacted laws, a division of cancer control has been established in the state department of health with offices at 1800 West Fillmore Street, Chicago. Dr. Raymond V. Brokaw, New York, has been appointed chief of the division and Dr. Perry J. Melnick, Chicago, pathologist to supervise a diagnostic service. The total amount of funds available under the two laws is about $18,000 a year. The work will be largely educational, emphasizing early diagnosis and early scientific treatment of cancer. Laboratory diagnostic service will be provided to the extent of resources. Last year in Illinois 11,186 fatalities were attributed to cancer. The appointment of an advisory board to the division of cancer control has also been announced. Present members of the board include Drs. David J. Davis, dean of the University of Illinois College of Medicine, Chicago, chairman; James Scott Templeton, Pinckneyville; Roswell T. Pettit, Ottawa; William M. Cooley, Peoria, and Edwin F. Hirsch, Chicago, secretary.

—Michael Reese Hospital, Cardiovascular Department, offers a full-time intensive course in Electrocardiography. Two weeks, August 19-31, 1940 by Dr. Louis N. Katz, Director of Cardiovascular Research.

This is an intensive course offered to the general practitioner. There will be practice on several electrocardiographic machines and discussion of the principles of their construction and use. There will be sessions on interpretations of electrocardiograms illustrated by lantern slides, and practice by the student with unknown records. Routine records taken during the time of the course will be discussed. Emphasis will be placed on chest leads and on the importance of the electrocardiogram in coronary sclerosis and myocardial infarction. The mechanism and interpretation of heart irregularities will be developed.

As group and individual instruction will be given, the course is open to both the beginning and advanced student in Electrocardiography. It is planned to individualize the course so that at the end of the period each student will be capable of taking and properly interpreting routine electrocardiograms. In order to accomplish this purpose the class will be limited in number. It is imperative, therefore, that reservations be made early.

Reservations may be made upon receipt of $10.00 which will be applied on the tuition. An hourly program of the course will be sent on request.

For further information address:

Michael Reese Hospital, Cardiovascular Department, 29th and Ellis Ave., Chicago, Illinois.

—On May 26 at 3 o'clock the Corner Stone laying services for the new Wesley Memorial Hospital will be held at the Hospital building site, Fairbanks Court and Superior Street, adjacent to the down town campus of Northwestern University. Dr. Franklyn Bliss Snyder, President of the University, will deliver the address and Bishop Ernest Lynn Waldorf will conduct the ritual of the service. This is to be an open service to which the public is cordially invited to attend.

The erection of this Hospital has been made possible through the generosity of Mr. George Herbert Jones, Vice-President of the Board of Trustees. The Hospital will be twenty stories and will contain about 525 beds. It will be the first unit in a group of buildings to be known as the George Herbert Jones Hospital Center.

Considerable study has been given to the development of the Hospital as a community medical center. It is the desire of Mr. Jones and the Trustees that the Hospital be a center from which will emanate knowledge concerning advances in medical science.

The Hospital building will be of the latest design, constructed in the shape of an X so that every room will be an outside one. Its equipment will be the most modern and scientific available.

The service will feature moderate priced private room accommodations which are not available in many hospitals.

Wesley Memorial Hospital is completing its fifty-second year of service, having received its

first patient on Christmas Day, 1888. From time to time it has outgrown its quarters. It moved from Dearborn and Ohio Streets in 1889 to 355 E. Ohio Street, and from there to its present location, 25th and Dearborn Streets, in 1891. A new addition was erected in 1901 and the present structure completed in 1910.

Mr. F. J. Thielbar, President of the Board of Trustees, has appropriately called the new Hospital "Wesley, the Cathedral of Healing."

Deaths

GEORGE LUDWIG ALT, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; a Fellow, A.M.A.; served during the World War; aged 58; died, March 25, of coronary thrombosis.

ELEANOR BEATTY, Pana, Ill.; Hering Medical College, Chicago, 1895; aged 81; died, March 21, of erysipelas and arteriosclerosis.

OVERTON BROOKS, Chicago; Northwestern University Medical School, Chicago, 1906; a Fellow, A.M.A.; fellow of the American College of Surgeons; naval examining officer in Chicago during the World War; past president of the North Side Branch of the Chicago Medical Society; was surgeon to the Chicago Great Western, Monon and Erie railroads; aged 59; on the staffs of St. Joseph's Hospital and the Henrotin Hospital, where he died, March 28, of lymphosarcoma and pneumonia.

MARTIN L. BROOKSHIER, Georgetown, Ill.; Barnes Medical College, St. Louis, 1903; member of the Illinois State Medical Society; aged 62; died, March 22, of chronic asthma.

DANIEL ROBERTS BROWDER, Mercedes, Texas; Rush Medical College, Chicago, 1902; aged 65; died, March 12, of cerebral arteriosclerosis.

THOMAS ACHILLES DICKS, Broadlands, Ill.; University Medical College of Kansas City, Mo., 1892; a Fellow, A.M.A.; aged 73; died, March 28, of heart disease.

JOSEPH PHILIP EVANS, Chicago; Loyola University School of Medicine, Chicago, 1930; a Fellow, A.M.A.; clinical assistant in medicine at his alma mater; aged 38; died, March 21, at Rochester, Minn., of glioma of the brain.

MARTIN WILLIAM FITZPATRICK, Decatur, Ill.; Rush Medical College, Chicago, 1903; a Fellow, A.M.A.; aged 65; formerly on the staff of St. Mary's Hospital, where he died, March 22, of heart disease.

VINCENT GINO, Chicago; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1902; served during the World War; on the staff of the University Hospital; aged 63; died, March 4, of coronary thrombosis.

CLARENCE PHILIP HOLOFFE, West Frankfort, Ill.; University of Illinois College of Medicine, Chicago, 1935; a Fellow, A.M.A.; aged 28; died, March 10, in the Barnes Hospital, St. Louis, of acute myocarditis.

MOSES HAYNES, Bingham, Ill.; Missouri Medical College, St. Louis, 1877; aged 90; died, March 16, of intestinal obstruction.

WILLIAM A. JONES, Quincy, Ill.; Missouri Medical College, St. Louis, 1880, aged 82; died, February 10, in Middletown, Ohio, of coronary sclerosis.

JOHN KERCHER, Chicago; Chicago Medical College, 1890; member of the Illinois State Medical Society; aged 77; died, March 20, of arteriosclerosis.

ORLA E. KUHN, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1904; on the staff of the Garfield Park Community Hospital; aged 61; died, March 8.

HARRY E. MARSELUS, Dixon, Ill.; American College of Medicine and Surgery, Chicago, 1904; a Fellow, A.M.A.; member of the American Psychiatric Association; on the staff of the Dixon State Hospital; formerly on the staffs of the Peoria (Ill.) State Hospital, Lincoln (Ill.) State Hospital and the East Moline (Ill.) State Hospital; aged 59; died, February 25, in Sheyboygan, Wis., of coronary embolism and hypertension.

ADOLPH BERNARD OYEN, Chicago; Detroit College of Medicine, 1890; a Fellow, A.M.A.; an Affiliate Fellow of the American Medical Association; on the staffs of the Lutheran Deaconess Hospital and the Norwegian American Hospital; aged 82; died, March 24, of cerebral hemorrhage.

VANCE M. POWELL, Peoria, Ill.; Louisville (Ky.) Medical College, 1894; aged 73; died, March 28, in St. Francis Hospital of carcinoma of the ileum.

CHARLES ELLIS SHULTZ, Bloomington, Ill.; Rush Medical College, Chicago, 1900; member of the Illinois State Medical Society; served during the World War; formerly city health officer; at one time superintendent of the Fairview Sanatorium, Normal; aged 73; died, March 2, in St. Joseph's Hospital, of hypertension and nephritis.

SAMUEL LORENZO STEVENS, Dalton City, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the Illinois State Medical Society; served during the World War; aged 65; died, March 31, of chronic cardiovascular disease.

WALLACE MARSH WATERMAN, Oak Park, Ill.; Rush Medical College, Chicago, 1887; aged 74; died, March 6, of arteriosclerosis.

CHARLES EDWIN WATERS, Murrayville, Ill.; St. Louis College of Physicians and Surgeons, 1908; aged 67; died, March 23, when he was struck by a train.

CLARENCE LEONARD WHITMIRE, American Lake, Wash.; University of Illinois College of Medicine, Chicago, 1919; a Fellow, A.M.A.; member of the Illinois State Medical Society and the American Psychiatric Association; senior physician on the staff of the Veterans Administration Facility; aged 44; died, March 2, in Tacoma of ruptured dissecting aneurysm of the aorta.